

ROYAL OBSERVATORY, GREENWICH.

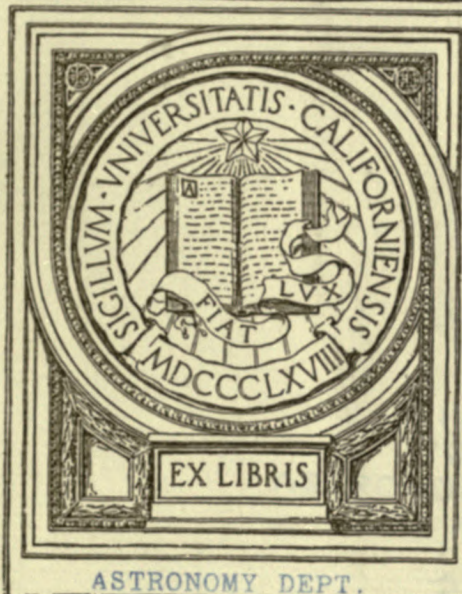
PHOTO-HELIOGRAPHIC
RESULTS.

1874-1885.

Ex Libris



GIFT OF
ASTRONOMICAL SOCIETY OF THE
PACIFIC



EX LIBRIS

ASTRONOMY DEPT.

LIBRARY
OF THE
ASTRONOMICAL SOCIETY
OF THE PACIFIC

1
2

PHOTO-HELIOGRAPHIC RESULTS

1874 TO 1885

BEING

SUPPLEMENTARY RESULTS

FROM

PHOTOGRAPHS OF THE SUN

TAKEN AT

GREENWICH, AT HARVARD COLLEGE, U.S.A., AT MELBOURNE,
IN INDIA, AND IN MAURITIUS

IN THE YEARS

1874 TO 1885:

AND MEASURED AND REDUCED AT THE

Greenwich. ROYAL OBSERVATORY, GREENWICH,

UNDER THE DIRECTION OF

SIR W. H. M. CHRISTIE, K.C.B., M.A., D.Sc., F.R.S.,

ASTRONOMER-ROYAL.

(APPENDIX TO THE GREENWICH OBSERVATIONS, 1905.)



EDINBURGH:

PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE
BY NEILL & CO., LIMITED, BELLEVUE.

1907.

Price Ten Shillings.

[All Rights Reserved.]

Gift of Astr. Soc. of Pacific

ASTRONOMY DEPT.

QD
G6
Astron.

TABLE OF CONTENTS.

	PAGE
INTRODUCTION	v
ERRATA AND ADDITIONS	xiii
Measures of Positions and Areas of Sun Spots and Faculæ on Photographs taken 1874-1877	1
Ledgers of Areas and Positions of Groups of Sun Spots for each day in the years 1874-1877	47
Ledgers of Areas and Positions of Groups of Sun Spots for each day in the years 1878-1881	79
Ledgers of Areas and Positions of Groups of Sun Spots for each day in the years 1882-1885	135
Total Projected Areas of Sun Spots and Faculæ for each day in the years 1874-1885	289
Mean Areas and Mean Heliographic Latitude of Sun Spots and Faculæ for each Rotation of the Sun from 1874 April 27 to 1886 January 16, and for each year from 1874 to 1885	313

PHOTO-HELIOGRAPHIC RESULTS,

1874-1885.

INTRODUCTION.

THE purpose of the present volume is to supplement the "Measures of Positions and Areas of Spots and Faculæ upon Photographs of the Sun" for the years 1874 to 1885, as published in the volumes of the *Greenwich Observations* for the years 1877 to 1885, so as to render them uniform with the similiar results published for 1886 and the succeeding years. And this in two directions. First, by supplying as far as possible the gaps in the series of solar photographs taken at Greenwich; and next, by adding to the results of the measures of positions and areas of spots and faculæ as exhibited in calendar form the results of the measures in three other forms as well. These forms include; first, "ledgers," wherein the life history is given for each group of spots as shown in its position and area day by day; next, tables giving the total areas day by day of spots and faculæ, as "projected," that is, as seen uncorrected for foreshortening; and third, tables of the mean areas and mean latitude of spots for each synodic rotation of the Sun, and for each year. Such "spot ledgers" and tables were given for the year 1886, and subsequent years, and are now supplied for the years 1874 to 1885.

In the matter of supplying the days unrepresented in the series of photographs taken at Greenwich, the twelve years in question, 1874 to 1885, fall into three periods of four years each. For the first period, 1874 to 1877, a number of solar photographs taken at the Observatories of Harvard College, Cambridge, Mass., U.S.A., and of Melbourne, Australia, were placed by the Directors of those two Observatories in the hands of the Astronomer Royal, and have been measured and reduced at the Royal Observatory, Greenwich, and the results have been collated with the measures of the solar photographs taken at Greenwich for the same years. The first section of the present volume contains these combined results from the Greenwich, Harvard College, and Melbourne photographs for the four years, 1874 to 1877, exhibited as a daily register, *i.e.* in calendar form; the second section gives those results in the form of ledgers of the spot groups.

For the second period, 1878 to 1881, the Solar Physics Committee obtained a number of solar photographs taken at Dehra Dûn in India, and at Melbourne, besides a few taken in Mauritius, and these were measured and reduced at the Solar Physics Observatory, South Kensington, under the direction of Sir J. Norman Lockyer. The

results were collated with the measures of the Greenwich photographs for the same years, and were published by the Solar Physics Committee in calendar form, in 1892. The results for these four years exhibited in the form of ledgers of spot-groups form the third section of the present volume.

In the third period, 1882 to 1885, photographs taken at Dehra Dûn in India, necessary to fill the gaps in the Greenwich series, were sent to the Astronomer Royal by the Solar Physics Committee as required, and were measured and reduced at the Royal Observatory, Greenwich, together with the photographs taken at Greenwich; the results in calendar form being published in the volumes of *Greenwich Observations* for 1882 and the following years. In 1885 photographs were also supplied in like manner from the Royal Alfred Observatory, Mauritius, and were measured and reduced together with the Greenwich and Dehra Dûn negatives. The fourth section of the present volume gives the combined results for these four years, 1882 to 1885, in the form of ledgers of spot-groups. From the year 1886 the ledgers of spot groups have been given regularly in the annual volumes of *Greenwich Observations*.

The fifth section gives the daily total projected areas of spots and faculæ for the whole of the twelve years, 1874 to 1885, and the sixth, the mean areas and mean latitudes of spots for the same complete period.

§ 1. *Measures of Positions and Areas of Sun Spots and Faculæ on Photographs taken at Greenwich, at Harvard, and at Melbourne, with the deduced Heliographic Longitudes and Latitudes; 1874-1877.*

These measures are the republication, in a modified form, of the "*Measures of Positions and Areas of Spots and Faculæ*" printed on pages 105-151 of the volume of *Greenwich Observations* for 1877, supplemented by measures of photographs taken at the Observatories of Harvard College, Cambridge, Mass., U.S.A., and of Melbourne, Australia, and placed in the hands of the Astronomer Royal for the purpose of measurement and reduction by the Directors of those two Observatories, Professor Edward C. Pickering and Dr. Robert J. Ellery, F.R.S.

The Greenwich photographs were taken with the Kew Photoheliograph of 3·6 inches aperture up to 1875 September 17, and after that date with the Dallmeyer Photoheliograph of 4 inches aperture returned from the Transit of Venus Expedition to New Zealand. The Melbourne photographs were taken with an instrument of the same pattern and aperture as the Dallmeyer Photoheliograph; and the Harvard College photographs were taken in the primary focus of a "horizontal photoheliograph"; the sunlight being received upon a movable mirror from which it was reflected into a

stationary lens of 5 inches aperture and about 39 feet focal length. The mean diameter of the image of the sun with each of these different instruments was about 4 inches.

The results of the measures of photographs of the Sun given in this volume, begin with 1874 April 17, on which date the regular work of the Photoheliographic Department was commenced at the Royal Observatory, Greenwich. The following table gives, for each of the three contributing observatories, the number of days in each year for which photographs of the sun taken there have been used for measurement and subsequent reduction.

	1874. (From April 17.)	1875.	1876.	1877.
Greenwich	139	150	154	168
Harvard College	2	65	66	...
Melbourne . . . . .	...	48	51	67
Days represented	141	263	271	235
Days without record	118	102	95	130
Total	259	365	366	365

The *first* column on each page in this, the first section of the following results, contains the Greenwich civil time at which each photograph was taken, expressed by the day of the year and decimals of a day, reckoning from Greenwich mean midnight, January 1d. 0h., and also by the day of the month (civil reckoning), which latter is placed opposite the total area of spots and faculæ for the day. In cases where two or more photographs taken on the same day have been measured, the mean of the several times has been given; the positions and areas of the several spots and faculæ as measured on the different photographs being similarly combined. The photographs taken at the Harvard College Observatory are distinguished by the letter H., those taken at the Melbourne Observatory by the letters Me.; when no distinguishing letter is inserted in this column, the photograph was taken at Greenwich.

The *second* column contains the initials of the two persons measuring the photograph; the initial on the left being that of the person who measured the photograph on the left of the centre of the measuring instrument, and that on the right being that of the person who measured on the right of the centre.

The following are the signatures of those persons who measured the photographs for the years 1874 to 1877:—

E. W. Maunder	M	F. J. Bell	JB
H. P. Hollis	H	A. E. Pilkington	EP
H. Appleyard	A	W. Russell	WR
W. Baker	B	S. J. Temple	ST

The *third* column gives the No. of the group, and the letter for the spot. The groups are numbered in order of their appearance.

The *next two* columns give the distance from the centre of the Sun in terms of the Sun's radius, and the position-angle from the Sun's axis, reckoned from the Sun's north pole in the direction *n, f, s, p*. The micrometer by which the measures of the photographs were made, and the processes of measurement and reduction are described in the Introductions to the annual volumes of the Greenwich Observations.

The *sixth* and *seventh* columns give the heliographic longitude and latitude of the spot; the inclination of the Sun's equator to the ecliptic being assumed to be $7^{\circ} 15'$, the longitude of the ascending node as 74° , the prime meridian of the Sun that which passed through the ascending node at mean noon 1854 January 1, and the period of rotation 25.38 days. The heliographic longitude and latitude of the centre of the Sun's disc at the time of the exposure of each photograph are also given (in brackets) in the *sixth* and *seventh* columns respectively. In the volume of *Greenwich Observations* for 1877 the longitudes, latitudes, and position-angles were expressed in degrees and minutes; in the present volume they are given in degrees and tenths of a degree. The *three last* columns give the areas of umbræ, whole spots and faculæ expressed in millionths of the Sun's visible hemisphere; the total areas for each day being given (in brackets) in the last line for that day. The individual spots in a group have not always been measured separately, but have often been combined into clusters of two or more spots close together, the position of the centre of gravity and the aggregate area of the cluster being given.

§ 2. *Ledgers of Areas and Positions of Groups of Sun Spots deduced from the measurement of the Solar photographs for each day in the years 1874-1877.*

In these ledgers the daily results for each group are collected together from the measures of the individual spots as printed in the previous section, and given in a condensed form. The *first* column gives, for each day on which the group was observed, the Greenwich civil time at which each photograph was taken, expressed by the day of the month (civil reckoning) and the decimals of a day reckoning from Greenwich mean midnight. The *second* and *third* columns give the sums for each day of the projected areas of all the umbræ and whole spots comprised in the group, the projected area being the area as it is measured upon the photograph, uncorrected for foreshortening, and expressed in millionths of the Sun's apparent disc. The *fourth* and *fifth* columns give the sums for each day of the areas of all the umbræ and whole spots comprised in the group, corrected for foreshortening, and expressed in millionths of the Sun's visible hemisphere. The *sixth* and *seventh* columns give the mean longitude and latitude of the group, found by multiplying the longitude and latitude of each separately measured component of the group by its area, and dividing the sum of the products by the sum

of the areas. The *last* column gives the mean longitude of the group from the central meridian, and is found by subtracting the longitude of the centre of the disc from the mean longitude of the group. In cases where no photograph has been available for measurement on a given day, the means have been taken of the areas and positions of the spot-groups as measured on the day immediately preceding and that immediately following the day for which the photograph is lacking. These interpolated values are enclosed in brackets, but have been used in taking the final means for each spot-group. These means of the areas of umbræ and whole spots and of the longitudes and latitudes of the spot-groups for the period of observation are given at the foot of the daily results.

§ 3. *Ledgers of Areas and Positions of Groups of Sun Spots deduced from the measurement of the Solar Photographs for each day in the years 1878 to 1881.*

This section contains ledgers of groups of sun spots similar in character and form to those given for the years 1874 to 1877 in the preceding section. The measures of Solar photographs here given in the form of ledgers were published in the form of a daily register, in the year 1892, by the Solar Physics Committee, under the title:—*Measures of Positions and Areas of Sun Spots and Faculæ on Photographs taken at Greenwich, Dehra Dûn, and Melbourne; with the deduced heliographic longitudes and latitudes, 1878–1881.*

The photographs taken at Greenwich during these four years were measured and reduced there under the direction of the Astronomer Royal, and the results were published in the annual volumes of the *Greenwich Observations* for the years 1878 to 1881, and also in the *Greenwich Spectroscopic and Photographic Results* extracted from those volumes of the *Greenwich Observations*. The photographs taken at Dehra Dûn and at Melbourne were measured and reduced at South Kensington, under the direction of the Solar Physics Committee, and were published in the year 1892 under the title quoted above, the Greenwich reductions (extracted from the volumes of *Greenwich Observations*) being interpolated for the sake of completeness. The position-angles, longitudes and latitudes given in the Greenwich results were at the same time altered from degrees and minutes to degrees and tenths of a degree.

Wherever two photographs were measured on any day, the means of the two photographs have been taken in the preparation of these ledgers, both as to the times of the photographs, and as to the areas and positions of the spots. An additional column has also been supplied to indicate the place where the photograph was taken. A photograph taken at Greenwich is indicated by the letter G, one taken at Dehra Dûn, in India, by the letter I., one taken at Melbourne, by the letters Me., and one taken in Mauritius, by the letters Ma.

The photographs taken in Mauritius were under the superintendence of the late Dr. C. Meldrum, Director of the Royal Alfred Observatory, Pamplemousses, Mauritius. The majority of these showed neither spots nor faculæ, being taken at a time of a pronounced minimum in the solar activity, and the absence of any features requiring measurement was recorded in the volume published by the Solar Physics Committee. But thirty-five photographs, taken at Mauritius and placed by Dr. Meldrum in the care of the Solar Physics Committee, showed spots or faculæ or both and fill up gaps on twenty-three days for which no other photographs are at present available. These photographs have now been measured at Greenwich, so far as the areas of the spots and faculæ are concerned; but as the photographs are not provided with wires, it was not possible to compute the heliographic co-ordinates of the spot-groups, which have therefore been simply interpolated from the results obtained on the days immediately preceding and following those on which the Mauritius photographs were taken. These interpolated values, like the values interpolated for days whereon no photograph is available, have been enclosed in brackets, but have been used in taking the final means for the spots-groups.

The following table gives the number of days in each of the four years for which photographs are available from each of the four Observatories, distinguishing in each case between the photographs actually measured, and those showing neither spots nor faculæ.

	1878.	1879.	1880.	1881.
Greenwich :—				
Photographs measured	51	62	150	168
No spots or faculæ	96	65	7	0
Dehra Dûn, India :—				
Photographs measured	41	23	146	170
No spots or faculæ	113	52	22	1
Melbourne, Victoria :—				
Photographs measured	4	11	16	9
No spots or faculæ	0	0	0	0
Mauritius :—				
Photographs measured	3	20	0	0
No spots or faculæ	39	85	0	0
Days represented	347	318	341	348
Days without record	18	47	25	17
Total	365	365	366	365

All the photographs included in this section were on a scale of about 4 inches to the Solar diameter.

§ 4. *Ledgers of Areas and Positions of Groups of Sun Spots deduced from the measurement of the Solar Photographs for each day in the years 1882 to 1885.*

This section contains ledgers of groups of sun spots precisely similar in character and form to those given for the years 1874 to 1877 in the second section, and to the ledgers for the year 1886 and the following years given in the annual volumes of *Greenwich Observations* for 1886 and subsequent years. The ledgers here given are derived from the Measures of Positions and Areas of Spots and Faculæ published in the annual volumes of *Greenwich Observations* for the years 1882 to 1885, and in the *Greenwich Spectroscopic and Photographic Results* extracted from them.

The photographs measured in this section were taken at Greenwich under the direction of the Astronomer Royal, at Dehra Dûn, North-West Provinces, India, under the direction of the Deputy Superintendent, Trigonometrical Survey of India, and at the Royal Alfred Observatory, Mauritius, under the direction of the late Dr. C. Meldrum. The following table gives the number of days for which each of the three observatories supplied photographs used for measurement in the four years 1882 to 1885.

	1882.	1883.	1884.	1885.
Greenwich	201	214	154	206
Dehra Dûn	142	126	161	128
Mauritius . . . . .	...	...	...	25
Days represented	343	340	315	359
Days without record	22	25	51	6
Total	365	365	366	365

The photographs taken at Greenwich were on a scale of about 4 inches to the solar diameter up to 1884 April 2, and on a scale of nearly 8 inches from that date onwards; those taken at Dehra Dûn were on the 4-inch scale up to 1882 November 7, and from 1882 December 8 to 1883 May 20, after which date they were on the 8-inch scale; the photographs taken at Mauritius were on the 4-inch scale until the end of 1885 February, the 8-inch scale being adopted at the beginning of 1885 March.

§ 5. *Total Projected Areas of Sun Spots and Faculæ for each day from 1874 April 17 to 1885 December 31.*

This section requires no further explanation and supersedes for the years 1882 to 1885 the corresponding tables given on pp. 60 to 66 of the *Greenwich Observations*

for 1888, and of the *Results of the Spectroscopic and Photographic Observations* made at the Royal Observatory, Greenwich in the year 1888, extracted from that volume.

§ 6. *Mean Areas and Mean Heliographic Latitude of Sun Spots and Faculae for each Rotation of the Sun from 1874 April 27 to 1886 January 16 and for each Year from 1874 to 1885.*

This section corresponds to the tables printed on pp. 106 to 112 of the *Greenwich Observations* for 1884, on pp. 103 and 104 of the *Greenwich Observations* for 1885, and on pp. 67 and 68 of the *Greenwich Observations* for 1888, and on the same pages of the *Greenwich Spectroscopic and Photographic Results* extracted from those three volumes. The figures given in this section, being based upon the measures of a more complete series of photographs than those given in the corresponding tables published in the volumes for 1884, 1885 and 1888, naturally supersede them.

The measurement of the photographs and the preparation of the tabular results contained in the present publication have been carried out under the immediate superintendence of Mr Edward Walter Maunder, Superintendent of the Photo-heliographic Branch.

W. H. M. CHRISTIE.

*Royal Observatory, Greenwich,
1907 July 20.*

ERRATA AND ADDITIONS.

GREENWICH OBSERVATIONS 1877.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

PAGE.	COL.	LINE.	
108	1	5	Mean Solar Time, for 154°692, read 154°962.
109	1	34	Area of Umbra, for 20, read 77.
			Area of Whole Spot, for 351, read 620.
		35	Area of Umbra, for 90, read 23.
			Area of Whole Spot, for 717, read 405.
		37	Total Area of Umbra, for 130, read 120.
			Total Area of Whole Spots, for 1767, read 1724.
114	1	29	Area of Umbra, for 110, read 89.
			Area of Whole Spot, for 641, read 522.
		31	Area of Whole Spot, for 60, read 73.
		33	Total Area of Umbra, for 110, read 89.
			Total Area of Whole Spots, for 701, read 595.
		34	Area of Whole Spot, for 237, read 193.
		35	Area of Whole Spot, for 53, read 65.
		36	Total Area of Whole Spots, for 290, read 258.
117	1	12	Area of Whole Spot, for 13, read 26.
		14	Total Area of Whole Spots, for 100, read 113.
119	2	12	Mean Solar Time, for 31°960, read 30°960.
		14	Longitude, for 182° 52', read 196° 2'.
		15	Mean Solar Time, for Feb. 2, read Feb. 1.
		16	Mean Solar Time, for 31°975, read 30°975.
		18	Longitude, for 183° 8', read 196° 18'.
		19	Mean Solar Time, for Feb. 2, read Feb. 1.
121	1	24	Area of Umbra, for 101, read 63.
			Area of Whole Spot, for 597, read 376.
		28	Total Area of Umbra, for 101, read 63.
		28	Total Area of Whole Spots, for 641, read 420.
		29	Area of Umbra, for 81, read 51.
			Area of Whole Spot, for 451, read 284.
		33	Total Area of Umbra, for 81, read 51.
			Total Area of Whole Spots, for 478, read 311.
	2	29	No. of Group, for 153*, read 153†.
		37	Area of Whole Spot, for 54, read 79.
		38	Area of Umbra, for 34, read 32.
			Area of Whole Spot, for 110, read 105.
		39	Area of Umbra, for 93, read 80.
			Area of Whole Spot, for 494, read 429.
		40	Total Area of Umbra, for 127, read 112.
			Total Area of Whole Spots, for 658, read 613.
122	2	26	Area of Umbra, for 155, read 127.
			Area of Whole Spot, for 951, read 773.
		27	Total Area of Umbra, for 183, read 155.
			Total Area of Whole Spots, for 1129, read 951.
124	2	26	Mean Solar Time, for 182°918, read 181°918.
			Position Angle, for 148° 14', read 148° 30'.

GREENWICH OBSERVATIONS, 1877—continued.

PAGE.	COL.	LINE.	
124	2	26	Longitude, for 49° 57', read 63° 18'.
		27	Position Angle, for 281° 33', read 282° 0'.
			Longitude, for 125° 13', read 138° 30'.
			Latitude, for +11° 55', read +12° 18'.
		28	Mean Solar Time, for July 3, read July 2.
		29	Mean Solar Time, for 182°934, read 181°934.
			Position Angle, for 148° 21', read 148° 48'.
			Longitude, for 49° 52', read 63° 6'.
			Latitude, for -9° 23', read -9° 10'.
		30	Position Angle, for 281° 23', read 281° 54'.
			Longitude, for 125° 11', read 138° 24'.
			Latitude, for +11° 46', read +12° 18'.
		31	Mean Solar Time, for July 3, read July 2.
		32	Mean Solar Time, for 185°885, read 184°885.
			Position Angle, for 247° 9', read 247° 42'.
			Longitude, for 49° 35', read 63° 0'.
			Latitude, for -9° 16', read -9° 6'.
		33	Mean Solar Time, for July 6, read July 5.
		34	Mean Solar Time, for 185°901, read 184°901.
			Position Angle, for 247° 33', read 248° 6'.
			Longitude, for 49° 50', read 63° 12'.
			Latitude, for -9° 12', read -9° 0'.
		35	Mean Solar Time, for July 6, read July 5.
125	1	2	Mean Solar Time, for 186°902, read 185°902.
			Position Angle, for 253° 27', read 253° 54'.
			Longitude, for 49° 35', read 63° 0'.
			Latitude, for -9° 13', read 8° 54'.
		3	Mean Solar Time, for July 7, read July 6.
		4	Mean Solar Time, for 186°955, read 185°955.
			Position Angle, for 253° 4', read 253° 30'.
			Longitude, for 49° 44', read 63° 0'.
			Latitude, for -9° 42', read -9° 24'.
		5	Mean Solar Time, for July 7, read July 6.
135	1	37	Mean Solar Time, for April 31, read May 1.
137	1	33	Latitude, for +7° 26', read -7° 26'.
	2	11	Mean Solar Time, for July 23, read July 22.
139	First Note	Line 2.	For May 5, 16, 18 to 21, read May 5, 18 to 20.

MEAN AREAS OF UMBRAE, WHOLE SPOTS, AND FACULÆ, FOR EACH ROTATION OF THE SUN, AND FOR EACH YEAR, FROM 1873 JULY 11, TO THE END OF 1877. Pages 149, 150 and 151.

This Section is superseded by the corresponding Tables on pages 314-317 of the present Volume.

GREENWICH OBSERVATIONS, 1878.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

PAGE. COL. LINE.

- 36 1 37-39 The second photograph taken on 1878 March 5 has not been used for the Ledger of Groups of Sun Spots.
- 2 9-10 No. of Group. *Transpose 271b and 271c.*
- 22 No. of Group, for 272a, read 272b.
- 23 No. of Group, for 272c, read 272a.
- 26 No. of Group, for 272a, read 272b.
- 27 No. of Group, for 272c, read 272a.

MEAN AREAS OF UMBRÆ, WHOLE SPOTS AND FACULÆ, FOR EACH ROTATION OF THE SUN IN THE YEAR 1878, AND FOR THE YEAR. Page 39.

This Section is superseded by the corresponding Tables on pages 314-317 of the present Volume.

GREENWICH OBSERVATIONS, 1879.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

- 23 1 37 { *Diminish all longitudes from November 12 to*
- 24 1 8 { *December 2 inclusive, by 1° 25'.*

MEAN AREAS OF UMBRÆ, WHOLE SPOTS AND FACULÆ, FOR EACH ROTATION OF THE SUN IN THE YEAR 1879, AND FOR THE YEAR. Page 25.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S DISC, FOR EACH ROTATION OF THE SUN, AND FOR EACH YEAR, FROM 1874 APRIL 16, TO 1879 DECEMBER 27. Pages 26 to 28.

These two Sections are superseded by the corresponding Tables on pages 314-321 of the present Volume.

GREENWICH OBSERVATIONS, 1880.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

- 67 1 26-28 The second photograph taken on 1880 March 19 has not been used for the Ledger of Groups of Sun Spots.
- 68 1 12 Distance, for 0° 859, read 0° 864.
- Longitude, for 174° 25', read 174° 52'.
- Latitude, for +19° 4', read +19° 32'.
- 13 Distance, for 0° 859, read 0° 854.
- Longitude, for 174° 25', read 173° 58'.
- Latitude, for +19° 2', read +18° 35'.
- 17 Distance, for 0° 867, read 0° 872.
- Longitude, for 174° 47', read 175° 16'.
- Latitude, for +18° 55', read +19° 22'.
- 18 Distance, for 0° 867, read 0° 862.

GREENWICH OBSERVATIONS, 1880—continued.

PAGE. COL. LINE.

- 68 1 18 Longitude, for 174° 46', read 174° 15'.
- Latitude, for +18° 59', read +18° 32'.
- 72 1 9 Mean Solar Time, for 153° 074, read 153° 116.
- 10-14 *Diminish all longitudes on June 2 by 0° 35'.*
- 20 Distance, for 0° 388, read 0° 407.
- Position Angle, for 349° 45', read 4° 6'.
- Longitude, for 89° 58', read 83° 54'.
- Latitude, for +22° 23', read +23° 48'.
- Area of Whole Spot, for 19, read 14.
- 21 Total Area of Whole Spots, for 77, read 72.
- 43-44 Area of Umbra, *Transpose 89 and 9.*
- Area of Whole Spot, *Transpose 345 and 12.*
- 73 2 31 Longitude, for 51° 10', read 62° 39'.
- Latitude, for -33° 55', read -38° 36'.
- 75 2 43 Area of Whole Spot, for 69c, read 69.
- 76 1 12 Total Area of Whole Spots, for 1625, read 1004.
- 77 1 29 } *Increase all longitudes on September 13 by 1° 0.*
- 2 5 }
- 78 2 35 Latitude, for -29° 10', read -20° 10'.

MEAN AREAS OF UMBRÆ, WHOLE SPOTS AND FACULÆ, FOR EACH ROTATION OF THE SUN, IN THE YEAR 1880, AND FOR THE YEAR. Page 83.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S DISC FOR EACH ROTATION OF THE SUN, IN THE YEAR 1880, AND FOR THE YEAR. Page 84.

These two Sections are superseded by the Tables on pages 314-321 of the present Volume.

GREENWICH OBSERVATIONS, 1881.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

Page 66, Column 1, after line 28. Insert as follows:—

	410b	0° 697	64 36	237 30	+13 18	0	21
	410b	0° 734	64 18	234 36	+14 36	0	17

- 66 1 30 Total Area of Whole Spots, for 730, read 768.
- 2 37 No. of Group, for 417, read 418.
- 67 2 15 Distance, for 0° 795, read 0° 747.
- Longitude, for 260° 2', read 264° 31'.
- Latitude, for -17° 29', read -17° 6'.
- 68 1 2 Mean Solar Time, for 74° 695, read 74° 965.
- 2 7 Longitude, for 223° 22', read 225° 18'.
- 9 Longitude, for 170° 3', read 169° 53'.
- Latitude, for +11° 2', read +12° 54'.
- 71 2 13-18 *Diminish all longitudes by 1° 0'.*
- 74 1 28 Distance, for 0° 632, read 0° 684.
- Longitude, for 312° 44', read 308° 45'.
- Latitude, for +12° 24', read +13° 7'.
- Area of Whole Spot, for 70, read 75.
- 35 Total Area of Whole Spots, for 1396, read 1401.

GREENWICH OBSERVATIONS, 1881—continued.

PAGE. COL. LINE.

- 80 1 31-32 No. of Group, transpose 553 and 552.
 2 35 Distance, for 0°562, read 0°536.
 Longitude, for 19°42', read 21°30'.
 Latitude, for +20°10', read +19°36'.
 83 1 3 Longitude, for 41°22', read 40°22'.
 84 1 7 Mean Solar Time, for 311°928, read 311°975.
 8-14 Diminish all longitudes by 0°40'.
 2 11 Area of Whole Spot, for 16, read 6.
 18 Total Area of Whole Spots, for 1742, read 1732.
 25 Distance, for 0°581, read 0°530.
 Longitude, for 248°8', read 251°14'.
 Latitude, for +24°54', read +22°51'.
 86 1 36 Distance, for 0°477, read 0°426.
 Longitude, for 28°22', read 28°8'.
 Latitude, for +28°14', read +24°59'.

MEAN AREAS OF UMBRÆ, WHOLE SPOTS, AND FACULÆ, FOR EACH
 ROTATION OF THE SUN, IN THE YEAR 1881, AND FOR THE
 YEAR. Page 88.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S
 DISC FOR EACH ROTATION OF THE SUN, IN THE YEAR 1881,
 AND FOR THE YEAR. Page 89.

These two Sections are superseded by the Tables on pages 314-321
 of the present Volume.

GREENWICH OBSERVATIONS, 1882.

INTRODUCTION.

lxxxii 9 For on 221 days, read on 201 days.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

- 42 1 27 Area of Whole Spot, for 78, read 8.
 34 Total Area of Whole Spots, for 344, read 274.
 43 1 31 Longitude, for 17°2, read 18°2.
 44 1 31 Area of Whole Spot, for 186, read 18.
 39 Total Area of Whole Spots, for 817, read 649.
 2 22 Longitude, for 241°8, read 241°6.
 45 1 46 No. of Group, for 666, read 668.
 Distance, for 0°845, read 0°541.
 Longitude, for 262°6, read 239°1.
 Latitude, for +17°4, read +7°5.
 Area of Umbra, for 35, read 22.
 Area of Whole Spot, for 199, read 127.
 Area of Faculæ, dele 333n.
 2 2 Area of Faculæ, insert 333n.
 14 Total Area of Umbra, for 269, read 256.
 Total Area of Whole Spots, for 1856, read 1784.

GREENWICH OBSERVATIONS, 1882—continued.

PAGE. COL. LINE.

- 45 1 22 Area of Whole Spot, for 144, read 14.
 36 Total Area of Whole Spots, for 1042, read 912.
 46 1 28 Longitude, for 159°3, read 158°9.
 49 2 22 Total Area of Whole Spots, for 844, read 845.
 51 1 33 Area of Umbra, for 18, read 32.
 34 Longitude, for 21°0, read 21°9.
 35 Longitude, for 2°6, read 3°5.
 36 Longitude, for 359°4, read 0°3.
 38 Longitude, for 267°7, read 268°6.
 40 Total Area of Umbra, for 80, read 94.
 2 5 Area of Whole Spot, for 34, read 3.
 9 Total Area of Whole Spots, for 742, read 711.
 Footnote. Group 711. Omit, It is not seen on March 28 and
 29, but appears again on March 30.
 53 2 8 Total Area of Umbra, for 248, read 247.
 23 Area of Whole Spot, for 79, read 8.
 33 Total Area of Whole Spots, for 2208, read 2137.
 55 2 4 Area of Umbra, for 271, read 162.
 6-10 Groups 733 to 738. Diminish all longitudes by 0°4.
 12 Total Area of Umbra, for 533, read 424.
 18 Area of Whole Spot, for 49, read 5.
 28 Total Area of Whole Spots, for 3376, read 3332.
 59 2 6 Longitude, for 20°0, read 20°1.
 Latitude, for -13°0, read -16°5.
 60 2 2 Longitude, for 332°6, read 277°3.
 63 1 13 No. of Group, for 789, read 787.
 64 2 8 Area of Whole Spot, for 316, read 32.
 12 Total Area of Whole Spots, for 397, read 113.
 68 2 26 Area of Whole Spot, for 166, read 17.
 32 Total Area of Whole Spots, for 491, read 342.
 72 2 4 Area of Umbra, for 97, read 36.
 9 Total Area of Umbra, for 119, read 58.
 75 1 18 Longitude, for 286°7, read 286°4.
 Latitude, for +5°7, read +8°1.
 76 2 36-46 } Oct. 20. Increase all longitudes on this day by 1°0.
 77 1 2-6 }
 16 No. of Group, for 859, read 862.
 Longitude, for 197°9, read 167°8.
 83 2 31 Area of Whole Spot, for 30, read 301.
 43 Total Area of Whole Spots, for 817, read 1088.
 85 1 30 Total Area of Umbra, for 93, read 94.
 87 2 35 Total Area of Whole Spots, for 1146, read 1147.

MEAN AREAS OF UMBRÆ, WHOLE SPOTS AND FACULÆ, FOR EACH
 ROTATION OF THE SUN, FROM 1881 DECEMBER 8 TO 1883
 JANUARY 18, AND FOR THE YEAR 1882. Page 88.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S
 DISC FOR EACH ROTATION OF THE SUN, FROM 1881 DECEMBER
 8 TO 1883 JANUARY 18, AND FOR THE YEAR 1882.
 Page 89.

These two Sections are superseded by the Tables on pages 314-321
 of the present Volume.

GREENWICH OBSERVATIONS, 1883.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

PAGE.	COL.	LINE.	
73	2	15	Area of Whole Spot, for 224, read 22.
		18	Longitude, for $187^{\circ}7$, read $197^{\circ}7$.
		23	Total Area of Whole Spots, for 1110, read 908.
74	2	7	Total Area of Umbra, for 152, read 142.
75	2	19	Latitude, for $+11^{\circ}0$, read $+11^{\circ}4$.
		20	Longitude, for $266^{\circ}9$, read $266^{\circ}7$.
		Footnote.	For Jan. 29-Feb. 1, read Jan. 28-Feb. 1.
78	2	22	Area of Whole Spot, for 17, read 169.
		32	Total Area of Whole Spots, for 641, read 793.
81	1	26-30	Mar. 18. Increase all longitudes by $0^{\circ}9$.
85	2	34	Mean Solar Time. Insert Apr. 21.
89		Footnote.	For June 2-9, read June 2-10.
91	1	22	No. of Group, for 1043, read 1045.
	2	5	Total Area of Umbra, for 1, read 19.
		21	Total Area of Facula, for 84, read 684.
95	1	37	Mean Solar Time, for $189^{\circ}084$, read $189^{\circ}894$.
		Footnote.	For July 14-16, read July 13-16.
97	2	21	Total Area of Umbra, for 314, read 311.
99	1	34	Area of Umbra, for 22, read 12.
		36	Total Area of Umbra, for 73, read 63.
	2	32	Total Area of Umbra, for 548, read 558.
102	2	46	Latitude, for $-11^{\circ}8$, read $+11^{\circ}8$.
104		Footnote.	Group 1130, for Oct. 2-13, read Oct. 2-14.
105	1	8	Mean Solar Time, for $277^{\circ}795$, read $278^{\circ}644$.
		Footnote.	Insert Group 1140, Oct. 9-18. A regular spot.
107		Footnote.	Insert Oct. 14. Some of the groups on this day were measured on an Indian photograph, $285^{\circ}644$.
108	1	20	Longitude, for $127^{\circ}1$, read $128^{\circ}0$.
		24	Area of Facula, for 18600, read 48600.
	27-34		Groups 1140-1147, increase all longitudes by $0^{\circ}9$.
		37	Total Area of Facula, for 6353, read 9353.
110	1	23	Area of Umbra, for 1, read 4.
		24	Total Area of Umbra, for 206, read 209.
112	1	32	Mean Solar Time, for $306^{\circ}791$, read $306^{\circ}707$.
	2	15	Distance, dele $0^{\circ}840$.
			Position Angle, dele $283^{\circ}7$.
113	1	34	Area of Whole Spot, for 8, read 2.
		47	Total Area of Whole Spots, for 602, read 596.
	2	6	Area of Umbra, for 1, read 2.
		15	Total Area of Umbra, for 151, read 152.
116	1	26	Area of Spot, for 86, read 9.
		31	Total Area of Whole Spots, for 2786, read 2709.
	2	4	Area of Umbra, for 33, read 3.
		14	Total Area of Umbra, for 303, read 273.
118	1	4	Longitude, for $105^{\circ}7$, read $105^{\circ}6$.
119		Footnote.	Group 1204, for Dec. 10-20, read Dec. 10-21.
120	1	18	Longitude, for $354^{\circ}3$, read $353^{\circ}7$.
		42	Total Area of Whole Spots, for 736, read 737.
	2	9	Total Area of Whole Spots, for 760, read 762.
121	2	21	Longitude, for $212^{\circ}7$, read $211^{\circ}7$.
		28	No. of Group, insert 1204.
122	1	48	Area of Umbra, for 24, read 11.
			Area of Whole Spot, for 191, read 86.
	2	8	Total Area of Umbra, for 410, read 397.
			Total Area of Whole Spots, for 3258, read 3153.

GREENWICH OBSERVATIONS, 1883—continued.

PAGE. COL. LINE.

123	2	14	Area of Whole Spot, for 114, read 11.
		39	Total Area of Whole Spots, for 2022, read 1919.

MEAN AREAS OF UMBRA, WHOLE SPOTS, AND FACULÆ, FOR EACH ROTATION OF THE SUN FROM 1882 DECEMBER 23 TO 1884 JANUARY 8, AND FOR THE YEAR 1883. Page 125.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S DISC FOR EACH ROTATION OF THE SUN, FROM 1882 DECEMBER 23, TO 1884 JANUARY 8, AND FOR THE YEAR 1883. Page 126.

These two Sections are superseded by the Tables on pages 314-321 of the present Volume.

GREENWICH OBSERVATIONS, 1884.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULÆ.

41	1	30	Area of Umbra, for 10, read 0.
		37	Total Area of Umbra, for 63, read 53.
	2	5	Longitude, for $140^{\circ}9$, read $137^{\circ}9$.
53		Footnote.	Group 1293, for Feb. 22-27, read Feb. 21-27.
54	1	8-10	No. of Group, for 1298, read 1299.
		21	Area of Facula, for 79860, read 7990.
		25	Total Area of Facula, for 10244, read 3057.
58	1	6	Total Area of Whole Spots, for 1759, read 1758.
	2	33	Area of Umbra, for 2, read 0.
59	1	4	Total Area of Umbra, for 233, read 231.
62	1	4	Area of Umbra, for 20, read 10.
		16	Total Area of Umbra, for 181, read 171.
72	1	6-19	No. of Group. Lower all these numbers for May 29 two lines each.
		39 } 2 }	Mean Solar Time, for $148^{\circ}655$, read $150^{\circ}659$.
74	1	5	Area of Umbra, for 5, read 10.
		7	Total Area of Umbra, for 52, read 57.
		24	Area of Umbra, for 10, read 13.
		28	Total Area of Umbra, for 54, read 57.
76	2	33	Area of Whole Spot, for 9, read 1.
		41	Total Area of Whole Spots, for 555, read 547.
77	1	33 } 2 }	Mean Solar Time, for $199^{\circ}709$, read $199^{\circ}909$.
82	1	27	Longitude, for $224^{\circ}9$, read $225^{\circ}0$.
			Latitude, for $-7^{\circ}1$, read $-7^{\circ}0$.
	2	10	Longitude, for $222^{\circ}0$, read $222^{\circ}2$.
97	2	3	Area of Whole Spot, for 194, read 225.
		17	Total Area of Whole Spots, for 679, read 710.
100	2	26	Area of Umbra, for 37, read 4.
		33	Total Area of Umbra, for 162, read 129.
102	2	2	Mean Solar Time, for $346^{\circ}148$, read $346^{\circ}748$.

GREENWICH OBSERVATIONS, 1884—continued.

PAGE. COL. LINE.

- 102 2 5 Total Area of Umbrae, for 69, read 70.
 12 Longitude, for $218^{\circ}4$, read $215^{\circ}5$.
 Latitude, for $-12^{\circ}7$, read $-12^{\circ}9$.

MEAN AREAS OF UMBRAE, WHOLE SPOTS AND FACULAE FOR EACH
 SYNODIC ROTATION OF THE SUN, FROM 1873 JULY 28.
 Pages 106 to 108.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S
 DISC, FOR EACH SYNODIC ROTATION OF THE SUN FROM 1874
 APRIL 27 TO 1884 DECEMBER 30. Pages 109 to 111.

MEAN AREAS OF UMBRAE, WHOLE SPOTS AND FACULAE, FOR
 EACH YEAR FROM 1873 TO 1884. Page 112.

MEAN HELIOGRAPHIC LATITUDE OF SPOTS UPON THE SUN'S DISC,
 FOR EACH YEAR FROM 1874 TO 1884. Page 112.

These four Sections are superseded by the corresponding Tables on
 pages 314-321 of the present Volume.

GREENWICH OBSERVATIONS, 1885.

MEASURES OF POSITIONS AND AREAS OF SPOTS AND FACULAE.

- 34 2 14 Area for Faculae, for 14, read 141.
 15 Area for Faculae, for 68, read 677.
 17 Total Area of Faculae, for 1245, read 1981.
 35 1 26 Area of Whole Spot, for 9, read 19.
 28 Total Area of Whole Spots, for 57, read 67.
 2 Longitude, for $169^{\circ}5$, read $169^{\circ}6$.
 41 1 9 Longitude, for $248^{\circ}6$, read $248^{\circ}7$.
 10 Longitude, for $246^{\circ}1$, read $246^{\circ}2$.
 11 Longitude, for $244^{\circ}1$, read $246^{\circ}2$.
 42 1 10 Area of Whole Spot, for 92, read 9.
 21 Total Area of Whole Spots, for 1332, read 1197.
 43 1 18 Area of Umbra, for 6, read 1.
 35 Total Area of Umbrae, for 190, read 185.
 2 18 Total Area of Whole Spots, for 1386, read 1378.
 35 Total Area of Whole Spots, for 1150, read 1158.
 47 2 12 Area of Whole Spot, for 96, read 10.
 15 Total Area of Whole Spots, for 2012, read 1926.
 48 1 7 Distance, for $0^{\circ}935$, read $9^{\circ}931$.
 11 Distance, for $0^{\circ}841$, read $0^{\circ}836$.
 12 Distance, for $0^{\circ}833$, read $0^{\circ}828$.
 52 2 2 Longitude, for $244^{\circ}4$, read $243^{\circ}6$.
 3 Longitude, for $240^{\circ}5$, read $239^{\circ}7$.
 4 Longitude, for $235^{\circ}7$, read $236^{\circ}4$.

PHOTO-HELIOGRAPHIC RESULTS, 1874-1885.

GREENWICH OBSERVATIONS, 1885—continued.

PAGE. COL. LINE.

- 52 2 5 Longitude, for $222^{\circ}3$, read $221^{\circ}5$.
 54 2 17-22 Group 1639, increase all longitudes by $0^{\circ}3$.
 56 2 18 Area of Whole Spot, for 2, read 3.
 27 Total Area of Whole Spots, for 762, read 763.
 2 30-31 Insert between lines 30 and 31, the following:—

		1651	$0^{\circ}707$	$258^{\circ}5$	$281^{\circ}0$	$-11^{\circ}1$	0	2	
		1651	$0^{\circ}691$	$259^{\circ}7$	$279^{\circ}8$	$-10^{\circ}2$	0	4	

- 40 Group 1649, delete the entire line.
 Footnote. Group 1649, for April 26-28, read April 26-27.
 Footnote. Group 1649, delete and 28.
 Footnote. Group 1651, delete, It is not seen on April 28.
 57 1 17 Total Area of Whole Spots, for 941, read 940.
 58 1 36 } Greenwich Civil Time, for $124^{\circ}159$, read $124^{\circ}279$.
 2 2 }
 59 2 20 Area of Umbra, for 0, read 2.
 60 1 8 Total Area of Umbrae, for 122, read 124.
 61 2 33 Area of Whole Spot, for 69, read 7.
 62 1 10 Total Area of Whole Spots, for 1754, read 1692.
 30 Area of Umbra, for 32, read 21.
 35 Total Area of Umbrae, for 219, read 208.
 63 2 16 Area of Umbra, for 2, read 0.
 23 Total Area of Umbrae, for 60, read 67.
 64 1 4 Total Area of Whole Spots, for 389, read 789.
 65 2 33 Latitude, for $-11^{\circ}7$, read $-1^{\circ}7$.
 69 2 38 Longitude, for $201^{\circ}1$, read $202^{\circ}1$.
 Footnote. Group 1708, for June 20, read June 19-20.
 75 2 19-21 No. of Group, for 1723, read 1723° .
 25 Area of Umbra, for 19, read 2.
 32 Total Area of Umbrae, for 206, read 189.
 75 Footnote. Insert Group 1723*. July 17. Three very small spots.
 76 1 9 Area of Umbra, for 1, read 0.
 24 Total Area of Umbrae, for 357, read 356.
 80 2 11 Total Area of Umbrae, for 109, read 112.
 81 1 3-4 Insert between lines 3 and 4 the following:—

		1738	$0^{\circ}364$	$191^{\circ}9$	$278^{\circ}3$	$-14^{\circ}2$	0	4	
--	--	------	----------------	----------------	----------------	----------------	---	---	--

- 81 1 13 Total Area of Whole Spots, for 763, read 767.
 82 1 7 Area of Umbra, for 2, read 0.
 19 Total Area of Umbrae, for 96, read 94.
 83 2 21-22 Insert between lines 21 and 22 the following:—

		1756*	$0^{\circ}804$	$87^{\circ}2$	$7^{\circ}8$	$+6^{\circ}6$	0	24	
--	--	-------	----------------	---------------	--------------	---------------	---	----	--

- 83 2 25 Total Area of Whole Spots, for 933, read 957.
 Footnote. Insert Group 1756*. Aug. 28. A small spot.
 84 2 2 No. of Group, for 1759, read 1757.
 89 2 2 Greenwich Civil Time, for $285^{\circ}381$, read $282^{\circ}151$.
 98 1 17 Longitude, for $281^{\circ}0$, read $280^{\circ}1$.
 100 2 6 } No. of Group, for 1813, read 1813° .
 7 }
 Footnote. Insert Group 1813*. Dec. 21. Two very small spots.

GREENWICH OBSERVATIONS, 1885—continued.

PAGE, COL. LINE.

102 1 5 Area of Whole Spot, for 30, read 16.
 11 Total Area of Whole Spots, for 315, read 301.

Photographs representing five days in 1885 have been obtained from the Royal Alfred Observatory, Mauritius, further supplementing the measures published in the *Greenwich Observations* for 1885. The results of the measures of these five photographs follow. These results have been used in the formation of the Ledgers in the present Volume.

1885.									
212'414	M, H	0'964	247'9	134'6	+22'8			29	
		0'933	284'5	128'7	+15'7			105	
		0'903	296'1	123'5	+26'1			189	
		0'891	252'0	119'4	-13'0			344	
		0'886	250'5	118'5	-14'2	0	8		
		0'733	248'1	103'0	-11'6	10	49		
		0'445	165'7	52'5	-19'5	7	40		
		0'486	166'7	52'3	-22'2	0	9		
		0'497	160'0	48'7	-21'8	33	202		
		0'474	156'7	47'8	-19'8	0	3		
		0'529	159'9	47'8	-23'8	0	5		
		0'544	160'0	47'4	-24'7	0	4		
		0'524	156'8	46'3	-22'8	11	55		
		0'927	109'5	354'3	-15'5			275	
				(59'2)	(+ 6'0)	(61)	(375)	(922)	
Aug. 1	Centre								
233'499	M, M	0'939	255'0	208'0	-11'5			160	
		0'768	272'8	190'9	+ 6'6	0	2	670	
		0'624	236'6	172'9	-14'2	37	224		
				(140'5)	(+ 7'0)	(37)	(226)	(227)	
Aug. 22	Centre								
234'211	SP, M	0'986	252'1	208'6	-16'2			39	
		0'853	251'0	186'5	-12'1			107	
		0'882	274'1	193'3	+ 7'0	8	19		
		0'863	273'2	191'0	+ 6'4	2	17		
		0'845	273'4	189'0	+ 6'7	2	24		
		0'766	242'4	175'8	-15'7	0	1		
		0'729	244'0	173'3	-13'4	37	203		
		0'718	241'8	171'8	-14'5	0	1		
		0'963	103'9	58'9	-11'3	35	187		
		0'983	102'6	53'6	-11'0	0	59		
		0'985	100'6	52'6	- 9'1	0	34		
		0'895	107'6	70'5	-12'3			371	
				(131'1)	(+ 7'1)	(84)	(545)	(1480)	
Aug. 23	Centre								
238'509	HE, P	0'837	237'1	123'6	-22'5			52	
		0'710	241'9	114'4	-14'1	5	32		
		0'694	240'2	112'6	-14'6	0	4		
		0'672	237'4	110'1	-15'4	11	45		
		0'414	139'5	58'4	-11'4	17	203		
		0'449	130'8	54'2	-10'3	0	14		
		0'451	118'0	50'8	- 5'7	8	31		
		0'832	100'9	19'4	- 5'0	0	24		
		0'860	102'0	16'7	- 6'5	0	19		
		0'882	98'3	13'5	- 3'9	0	12		
		0'891	99'3	12'5	- 5'0	0	79		
		0'909	99'0	10'2	- 5'1	13	78		
		0'912	86'5	8'2	+ 6'1	0	37		
				(74'3)	(+ 7'1)	(54)	(578)	(344)	
Aug. 27	Centre								

GREENWICH OBSERVATIONS, 1885—continued.

1885.									
242'210	H, SP	0'854	289'1	84'4	+20'1			71	
		0'818	270'1	80'3	+ 4'2			115	
		0'770	248'6	72'2	-11'4			361	
		0'628	242'4	59'8	-11'0	12	88		
		0'580	243'6	57'0	- 8'8	4	13		
		0'582	241'0	56'8	-10'2	0	16		
		0'612	235'9	56'7	-13'9	0	5		
		0'581	238'5	55'6	-11'4	14	47		
		0'557	241'9	55'1	- 8'9	20	54		
		0'594	233'5	54'8	-14'4	0	4		
		0'501	237'7	54'2	-11'1	0	7		
		0'450	239'9	48'4	- 6'4	1	4		
		0'400	232'9	44'1	- 7'1	4	23		
		0'216	168'4	22'9	- 5'0	25	127		
		0'229	160'6	21'0	- 5'2	3	19		
		0'231	151'8	19'1	- 4'6	1	9		
		0'268	140'6	15'6	- 4'8	11	108		
		0'326	128'7	10'7	- 4'7	13	65		
		0'688	80'7	34'7	+11'6	45	238		
		0'714	83'3	33'6	+ 9'8	28	253		
		0'822	102'6	33'8	- 6'0				
		0'854	77'4	32'2	+14'5				
		0'939	104'1	31'7	-10'6				
Aug. 31	Centre			(25'4)	(+ 7'2)	(182)	(1080)	(1205)	

MEAN AREAS OF UMBRE, WHOLE SPOTS, AND FACULE FOR EACH
 ROTATION OF THE SUN, FROM 1884 DECEMBER 31 TO 1885
 DECEMBER 20, AND FOR THE YEAR 1885. Page 103.

MEAN HELIOGRAPHIC LATITUDE OF THE SPOTS UPON THE SUN'S
 DISC FOR EACH ROTATION OF THE SUN, FROM 1884
 DECEMBER 31 TO 1885 DECEMBER 20, AND FOR THE YEAR
 1885. Page 104.

These two Sections are superseded by the corresponding Tables on
 pages 314-321 in the present Volume.

GREENWICH OBSERVATIONS, 1888.

TOTAL PROJECTED AREAS OF UMBRE, WHOLE SPOTS, AND FACULE
 FOR EACH DAY, AND MEAN PROJECTED AREAS FOR EACH
 ROTATION OF THE SUN, AND FOR EACH YEAR FROM 1882 TO
 1885. Pages 69 to 68.

This Section is superseded by the corresponding Tables on pages
 305-321 in the present Volume.

PUBLICATIONS OF THE SOLAR PHYSICS COMMITTEE.

MEASURES OF POSITIONS AND AREAS OF SUN SPOTS AND FACULÆ
ON PHOTOGRAPHS TAKEN AT GREENWICH, DEHRA DŪN,
AND MELBOURNE, WITH THE DEDUCED HELIOGRAPHIC
LONGITUDES AND LATITUDES, 1878-1881.

PAGE. COL. LINE.

5	1	31	Mean Solar Time, for Feb. 26, read Feb. 26*.
	2	6-8	The second photograph on March 5 has not been used for the Ledger in the present Volume.
6	2	15	Mean Solar Time, for June 4, read 153°936. Area of Faculæ, insert 530s. After Line 15:— Mean Solar Time, insert June 4. Total Area of Umbra, insert (9). Total Area of Whole Spots, insert (52). Total Area of Faculæ, insert (530).
7	1	4	Latitude, for +12°8, read +12°7.
8	2	8	Latitude, for +10°1, read +10°0.
9	2	16	Total Area of Faculæ, for 138, read 128.
12	2	44	Area of Umbra, for 6, read 0.
13	1	5	Longitude, for 267°5, read 267°1.
		6	Longitude, for 264°5, read 267°1.
		25	Longitude, for 266°5, read 266°1.
		40	Longitude, for 24°7, read 22°7.
	2	3	Longitude, for 22°7, read 22°2.
14	2	35	Total Area of Umbra, for 122, read 112.
15	2	22-23	The photograph on Jan. 29 has not been used for the Ledger, or for the computation of Projected Areas in the present Volume.
		24	Mean Solar Time, for 29°136, read 29°036.
		30	Latitude, for -15°6, read -15°5.
		31	Latitude, for +19°2, read +19°3.
16	2	36	Total Area of Whole Spots, for 544, read 644.
		40	Latitude, for +28°2, read +28°3.
17	2	32-33	No. of Group, for 312, read 312*.
		37-38	
		45-46	
18	1	38	Total Area of Umbra, for 40, read 50.
		41	Latitude, for +19°7, read +19°6.
19	1	27	Latitude, for -20°3, read +20°3.
	2	30	No. of Group, for 317, read 317*.
20	1	11	Position Angle, for 301°6, read 301°1.
			Longitude, for 201°9, read 201°2.
		36	Distance, for 0°859, read 0°864.
			Longitude, for 174°4, read 174°9.
			Latitude, for +19°1, read +19°5.
		37	Distance, for 0°859, read 0°854.
			Longitude, for 174°4, read 174°0.
			Latitude, for 19°0, read +18°6.
		41	Distance, for 0°867, read 0°872.

PAGE. COL. LINE.

20	1	41	Longitude, for 174°8, read 175°3. Latitude, for +18°9, read +19°0.
		42	Distance, for 0°867, read 0°862. Longitude, for 174°8, read 174°3. Latitude, for +19°0, read +18°5.
	2	10	Position Angle, for 244°6, read 244°4.
21	2	30	Distance, for 0°394, read 0°398.
		31	No. of Group, for 322, read 320.
22	2	32	Area of Umbra, for 11, read 1.
23	1	13	Longitude, for 87°6, read 87°7.
		43	Total Area of Faculæ, for 506, read 706.
24	1	45	Position Angle, insert 60°5.
	2	14	Longitude, for 153°3, read 153°5.
		26	Position Angle, insert 55°2.
25	1	15	Longitude, for 156°9, read 157°0.
		30	Distance, for 0°388, read 0°407. Position Angle, for 349°8, read 4°6. Longitude, for 90°0, read 83°9. Latitude, for +22°4, read +23°8. Area of Whole Spot, for 19, read 14.
		31	Total Area of Whole Spots, for 77, read 72.
		49	Total Area of Whole Spots, for 147, read 113.
	2	37	Total Area of Umbra, insert (150). Total Area of Whole Spots, insert (619). Total Area of Faculæ, insert (1271).
26	1	52	Position Angle, insert 122°5.
		53	Position Angle, insert 69°3.
	2	12	Total Area of Umbra, for 190, read 196.
		50	No. of Group, for 333, read 333*.
27	1	6	No. of Group, for 333, read 333*.
			Area of Faculæ, insert 340f.
		7	Area of Faculæ, insert 192c.
		18	Latitude, for -36°2, read -36°0.
		27	No. of Group, for 333, read 333*.
	2	18	Area of Faculæ, insert 722c.
		25	Area of Faculæ, insert 386c.
28	1	39	Total Area of Umbra, for 96, read 86.
29	1	50	Total Area of Whole Spots, for 509, read 609.
	2	12	Total Area of Faculæ, insert (505).
30	1	17	Area of Faculæ, insert 635f.
		49	Latitude, for 13°9, read 18°9.
	2	35	Total Area of Whole Spots, for 1625, read 1004.
31	1	40	Total Area of Whole Spots, for 197, read 199.
	2		Distance, insert 0°982.
Between lines.			Position Angle, insert 109°8.
26 and 27			Area, insert 319.
31	2	45	Total Area of Umbra, insert (127). Total Area of Whole Spots, insert (605). Total Area of Faculæ, insert (1067).

PAGE. COL. LINE.

32	2	4	Position Angle, for $206^{\circ}6$, read $206^{\circ}5$.
		8	Longitude, for $237^{\circ}6$, read $237^{\circ}7$.
33	1	44	Position Angle, for $237^{\circ}6$, read $237^{\circ}7$.
	2	8	Distance, for $0^{\circ}673$, read $0^{\circ}675$.
34	1	20	Position Angle, for $113^{\circ}5$, read $113^{\circ}8$.
		30	Longitude, for $91^{\circ}4$, read $91^{\circ}6$.
35	1	19	No. of Group, for 360, read 361.
		24	Position Angle, for $288^{\circ}9$, read $289^{\circ}9$.
	2	16	Latitude, for $-19^{\circ}2$, read $20^{\circ}2$.
		45	Area of Faculæ, <i>dele</i> 49.
		46	Total Area of Faculæ, for 49, read 0.
36	1	49	Total Area of Faculæ, for 2618, read 2718.
	2	26	Area of Faculæ, <i>insert</i> 117p.
		45	No. of Group, for 373, read 373° .
37	1	8	No. of Group, for 373, read 373° .
		33	No. of Group, for 380, read 380° .
			Position Angle, for $67^{\circ}9$, read $67^{\circ}8$.
		40	No. of Group, for 380, read 380° .
		41	
		42	
		48	No. of Group, for 380, read 380° .
	2	3	No. of Group, for 380, read 380° .
		4	
		7	
		23	No. of Group, for 380, read 380° .
		24	
		25	
		26	
		27	
		32	
		33	
		34	
		35	
		44	
		45	
		47	
38	1	10	No. of Group, for 380, read 380° .
		12	
		13	
		28	
		49	Total Area of Umbrae, <i>insert</i> (139).
		49	Total Area of Whole Spots, <i>insert</i> (574).
		49	Total Area of Faculæ, <i>insert</i> (1090).
39	1	51	Total Area of Umbrae, for 22, read 26.
		51	Total Area of Whole Spots, for 91, read 81.
40	1	17	Distance, for $0^{\circ}916$, read $0^{\circ}915$.
		44	Total Area of Umbrae, <i>insert</i> (257).
			Total Area of Whole Spots, <i>insert</i> (1120).
			Total Area of Faculæ, <i>insert</i> (2594).
40	2	5	Distance, for $0^{\circ}989$, read $0^{\circ}939$.
41	2	44	Area of Faculæ, <i>insert</i> 344c.
42	1	8	Position Angle, <i>insert</i> $62^{\circ}3$.
43	1	8	Mean Solar Time, for Dec. 30, read Dec. 30° .
			Total Area of Whole Spots, for 560, read 494.
44	1		Distance, <i>insert</i> $0^{\circ}918$.
Between lines			Position Angle, <i>insert</i> $108^{\circ}8$.
36 and 37			Area of Faculæ, <i>insert</i> 286.
	2	31	Total Area of Whole Spots, for 738, read 753.
45	1	26	Total Area of Whole Spots, for 1443, read 1439.
	2	11	Total Area of Faculæ, for 1902, read 1922.
		30	Total Area of Umbrae, for 243, read 253.
46	2	17	Position Angle, <i>insert</i> $73^{\circ}0$.
47	1	17	Total Area of Faculæ, for 7264, read 6964.

PAGE. COL. LINE.

47	1	33	Total Area of Whole Spots, for 508, read 518.
	2	10	Total Area of Umbrae, for 194, read 204.
		44	Total Area of Faculæ, for 2418, read 2218.
		45	Mean Solar Time, <i>insert</i> $54^{\circ}923$.
48	2	22	Position Angle has been omitted, and cannot now be supplied.
		41	Latitude, for $+18^{\circ}5$, read $-18^{\circ}5$.
		42	Latitude, for $-19^{\circ}7$, read $+19^{\circ}7$.
		50	Area of Umbrae, for 5, read 9.
		51	Distance, for $0^{\circ}779$, read $0^{\circ}979$.
49	2	15	No. of Group, for 434, read 433.
		30	Mean Solar Time, for $74^{\circ}695$, read $74^{\circ}965$.
50	1	3	Area of Faculæ, <i>insert</i> 586f.
		51	No. of Group, for 441, read 441° .
	2	7	
		8	
		9	
		15	
		16	
		22	
		44	Area of Faculæ, for 118, read 108.
51	2	13	Area of Faculæ, <i>insert</i> 262c.
		14	Area of Faculæ, <i>insert</i> 445np.
52	1	3	Latitude, for $+23^{\circ}1$, read $+23^{\circ}0$.
	2	47	Total Area of Whole Spots, for 546, read 775.
53	1	36	No. of Group, for 465, read 465° .
	2	27	Mean Solar Time, for May 4, read May 4° .
54	1	24	Mean Solar Time, for May 8, read May 8° .
		25	Area of Faculæ, for 227, read 277.
		43	Mean Solar Time, for May 10, read May 10° .
			Total Area of Umbrae, for 77, read 87.
	2	39	Area of Faculæ, for 413, read 423.
		46	Longitude, for $207^{\circ}0$, read $206^{\circ}8$.
55	1	11	Area of Faculæ, <i>insert</i> 497p.
		14	Area of Faculæ, for 1213, read 1213f.
	14-19		<i>Diminish</i> all longitudes on May 21 by $1^{\circ}0$.
		29	Total Area of Umbrae, for 66, read 68.
57	2	40	Total Area of Faculæ, for 560, read 1316.
58	2	7	Total Area of Umbrae, for 164, read 128.
			Total Area of Whole Spots, for 725, read 718.
			Total Area of Faculæ, for 3252, read 4314.
		30	Area of Whole Spot, for 70, read 75.
		37	Total Area of Whole Spots, for 1396, read 1401.
59	1	46	Position Angle, <i>insert</i> $201^{\circ}8$.
		47	Position Angle, <i>insert</i> $120^{\circ}0$.
	2	18	Position Angle, for $65^{\circ}3$, read $65^{\circ}0$.
63	1	7	Total Area of Faculæ, for 4929, read 5129.
	2	5	Total Area of Umbrae, for 93, read 95.
		14	Position Angle, <i>insert</i> $74^{\circ}8$.
		15	Position Angle, <i>insert</i> $140^{\circ}7$.
		25	Area of Faculæ, <i>insert</i> 849p.
64	1	4	Area of Faculæ, for 255, read 270.
	2	47	Position Angle, for $72^{\circ}7$, read $72^{\circ}4$.
65	2	18	Area of Faculæ, <i>insert</i> 1133sp.
66	1	22	Area of Faculæ, <i>insert</i> 572f.
		23	Area of Faculæ, <i>insert</i> 188p.
		30	Area of Faculæ, for 316, read 326.
67	1	18	Area of Faculæ, <i>insert</i> 260.
		27	Position Angle, for $53^{\circ}0$, read $54^{\circ}0$.
		40	Area of Faculæ, <i>insert</i> 585c.

PAGE. COL. LINE.

- 67 1 48 Position Angle, for $60^{\circ}1$, read $60^{\circ}0$.
 68 2 26 Area of Faculae, insert $74^{\circ}2$.
 27 Area of Faculae, insert $116^{\circ}5$.
 69 1 16 Area of Umbra, for 24, read 22.
 2 21 Total Area of Whole Spots, for 655, read 685.
 31 Total Area of Whole Spots, for 886, read 916.
 53 Mean Solar Time, for Oct. 12, read Oct. 12*.
 71 1 28 Total Area of Umbrae, for 210, read 209.
 2 25 Distance, for $0^{\circ}956$, read $0^{\circ}966$.
 72 2 38 Longitude, for $251^{\circ}6$, read $251^{\circ}9$.
 73 1 19-29 The Indian photograph for Nov. 16 does not show Groups 601 and 608, which are seen on the Greenwich photograph for that date. The Greenwich measures for those two groups have therefore been adopted in the formation of the Ledgers in the present volume; increasing the Total Area for Whole Spots in line 29, from 1105 to 1117.
 75 1 23 Total Area of Umbrae, for 191, read 201.

PAGE. COL. LINE.

- 77 1 13 Area of Faculae, insert 204c.
 2 14 Total Area of Umbrae, for 32, read (32).

RECORD OF ABSENCE OF SPOTS IN THE YEARS 1878-1881.

PAGE. LINE.

- 77 8 1878 March, insert 91 I.
 78 12 1879 March, insert 16 I.
 15 1879 May, for 17 I, read 17.
 23 1879 November, insert 6.
 27 1880 February, insert 14 Me.
 1880 February, for 16 I, read 16 Me.
 28 1880 March, for 23 I, read 23.
 29 1880 April, for 22 I, read 22 Me.
 31 1880 June, insert 14 Me.
 32 1880 July, insert 17 Me.
 36 1881 January, insert 15 I.
 37 1881 August, insert 14 I, and 16 I.
 After 37 Insert October 31 I.

PHOTO-HELIOGRAPHIC RESULTS, 1874-1885.

MEASURES OF POSITIONS AND AREA OF SUN SPOTS AND FACULÆ
ON PHOTOGRAPHS TAKEN IN THE YEARS, 1874-1877.

Photographs taken on the following additional dates show neither Spots nor Faculæ :—

1874, April 20, 21, 22, 23.
June 8, 9.
October 26, 27, 29.
December 3.
1875, January 28.
February 15, 16.
1876, March 3.
September 12, 20.
November 24, 27, 30.
December 1, 2, 7, 12, 14.
1877, May 30.
June 12, 17, 18, 19, 20, 21, 22.
July 6, 7, 13, 24, 25, 26, 29.
August 9, 12, 16, 17, 18, 20, 21.
September 22.
October 2, 3, 8, 9, 11, 12, 15, 16, 18, 20.
November 20.
December 28.

PAGE. COL. LINE.

3 2 28 Group 96. *Dele* the entire line.
29 Total Area of Whole Spots, for 588, read 541.
Footnote Grnp 96, for June 25-July 4, read June 27-July 4.
8 1 13 Area of Faculæ, insert 662p.
19 Total Area of Faculæ, for 4898, read 5560.
2 8 Area of Faculæ, insert 1702p.
10 Total Area of Faculæ, for 0, read 1702.
12 2 24 Longitude, for 316°3, read 320°4.
13 2 24 No. of Group, for 150*, read 150.
14 1 23 Position Angle, for 250°9, read 257°3.
Longitude, for 9°5, read 9°9.
Latitude, for -19°3, read -14°3.
15 2 4 Greenwich Civil Time, insert H.
17 2 16 For No Spots or Faculæ, read No photograph.
19 2 23 For No Spots or Faculæ, read No photograph.
21 1 22 Greenwich Civil Time, for Sept. 23, read Sept. 22.
23 2 28 For No Spots or Faculæ, read No photograph.

PAGE. COL. LINE.

28 1 19 No. of Group, *dele* 201.
2 18 No. of Group, *dele* 208.
30 2 14 For No Spots or Faculæ, read No photograph.
34 2 22 For No Spots or Faculæ, read No photograph.
35 2 29 For No Spots or Faculæ, read No photograph.
40 Footnote Grnp 246, insert Another distant companion is seen on May 17.
45 1 12 Area of Faculæ, for 644, read 464.
2 4 Greenwich Civil Time, for Dec. 7, read Dec. 8.
7 Greenwich Civil Time, for Dec. 11, read Dec. 14.
8 Greenwich Civil Time, for Dec. 14, read Dec. 17.
10 Greenwich Civil Time, for Dec. 15, read Dec. 18.
11 Greenwich Civil Time, for Dec. 17, read Dec. 26.

LEDGERS OF AREAS AND POSITIONS OF GROUPS OF SUN SPOTS FOR
THE YEARS 1878-1881.

PAGE. GROUP. DATE.

89 317 Apr. 8 Longitude, for 174°6, read 174°7.
Latitude, for +19°0, read +18°8.
Means Longitude, for 173°79, read 173°80.
Latitude, for +18°30, read +18°28.
96 368 Oct. 4 Projected Area of Whole Spot, for 12, read 122.
114 487 June 9 Projected Area of Whole Spot, for 775, read 175.
120 528 Aug. 2 Area of Whole Spot, for 511, read 51.
Means Mean Area of Whole Spot, for 274, read 228.
126 576 Oct. 4 Projected Area of Umbra, for 40, read 37.
Area of Umbra, for 24, read 22.

Page 85, Group 296, substitute the following :—

Group 296.

One small spot, not seen on November 26.

d	G	3	15	5	23	0	12°2	0
Nov. 25	Ma	0	0	0	0	27°1	...	-70°9
26	...	...	...	...	...	...	...	...
27	...	Nophotograph	...	...	...	...	...	...
28	G	17	39	11	25	22°5	-13°3	-36°1
29	Ma	0	26	0	15	22°5	-13°3	-27°8
Means	...	...	...	4	16	24°03	-12°93	...

Page 89, Group 316A, *substitute* the following:—

Group 316A.

A few spots, mostly small, in a stream inclined at a considerable angle to the equator. The group is not seen on March 28.

1880. ^d									
Mar. 27 '217	I	9	33	5	18	287°1	—30°8	+ 0°9	
28	...	0	0	0	0	...	...	...
29 '175	I	31	138	20	87	288°8	—29°2	+32°5	
30 '312	I	30	146	24	114	288°9	—28°9	+47°5	
31 '303	I	16	84	16	84	287°3	—28°7	+58°9	
Means	...	...	...	13	61	288°03	—29°40	...	

Pages 93 and 94, Group 349, *substitute* the following:—

Group 349.

A small spot on August 21, not seen on August 22. The group has re-appeared as a pair of small spots by August 23. It is not seen on August 25, 26 or 27, but has reappeared again by August 28, and has greatly increased in size by August 30 and 31.

^d									
Aug. 21 '503	G	17	33	19	36	71°2	+23°1	—63°4	
22 '261	I	0	0	0	0	...	...	...
23 '205	I	17	65	12	46	67°8	+22°2	—44°3	
24 '216	I	35	122	21	72	69°8	+22°7	—29°0	
25	...	0	0	0	0	...	...	...
26	...	0	0	0	0	...	...	...
27	...	0	0	0	0	...	...	...
28 '506	G	0	39	0	22	66°7	+22°0	+24°6	
29 '236	I	43	174	27	109	66°0	+21°8	+33°5	
30 '285	I	95	459	72	348	66°8	+21°6	+48°2	
31 '516	G	68	469	74	514	66°0	+21°9	+63°7	
Sept. 1 '404	G	26	252	51	443	65°7	+22°0	+74°6	
2 '517	G	0	55	0	218	61°3	+23°8	+85°4	
Means	...	...	...	21	139	66°81	+22°34	...	

LEDGERS OF AREAS AND POSITIONS OF GROUPS OF SUN SPOTS
FOR THE YEARS 1882-1885.

PAGE.	GROUP.	DATE.	
162	862	Oct. 21	Projected Area of Whole Spot, for 557, read 574. Area of Whole Spot, for 322, read 332. Longitude, for 167°5, read 167°6.

PAGE. GROUP. DATE.

162	862	Oct. 21	Longitude from Central Meridian, for +29°1, read +29°2. Means. Mean Area of Whole Spot, for 170, read 172. Mean Longitude, for 168°55, read 168°57.
187	1062	June 27	Area of Umbra, for 209, read 228. Area of Whole Spot, for 1227, read 1391.
187	1062	June 27	Latitude, for +9°7, read +9°6. Means. Mean Area of Umbra, for 218, read 220. Mean Area of Whole Spot, for 1353, read 1366. Mean Latitude, for +10°49, read +10°48.
197	1137	Oct. 8.	Area of Whole Spot, for 142, read 144.

Page 162. Group 859, *substitute* the following:—

Group 859.

Four or five small spots arranged in a straight line.

Oct. 16 '191	0	98	0	50	193°6	+15°2	—10°7
17 '323	15	132	8	67	195°3	+15°1	+ 5°8
18 '336	34	69	18	37	194°3	+15°0	+18°2
19 '309	13	77	8	46	194°7	+15°7	+31°4
20 '491	8	75	6	56	195°7	+15°6	+48°1
21 '196	0	16	0	15	196°0	+15°2	+57°6
Means	...	...	7	45	194°93	+15°30	...

Group 859.*

A small spot.

Oct. 22 '635	2	24	4	43	193°8	+9°7	+74°4
Means	...	...	4	43	193°8	+9°7	...

TOTAL PROJECTED AREAS OF SUN SPOTS AND FACULÆ FOR
EACH DAY IN THE YEARS, 1874-1885.

PAGE.	DATE.	
290	1874 June 25.	Area of Whole Spots, for 361, read 278.
295	1877 March 30.	For 0 0 0, read No photograph.
301	1880 June 28.	Area of Faculæ, for 1033, read 1580.
311	1885 August 30.	Area of Faculæ, for 285, read 993.

ROYAL OBSERVATORY, GREENWICH.

MEASURES OF POSITIONS AND AREAS
OF
SUN SPOTS AND FACULÆ
ON
P H O T O G R A P H S

TAKEN

AT GREENWICH, AT HARVARD, AND AT MELBOURNE,

WITH THE DEDUCED

HELIOGRAPHIC LONGITUDES AND LATITUDES.

1874-1877.

MEASURES of POSITIONS and AREAS of SUN SPOTS and FACULÆ on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, at HARVARD COLLEGE OBSERVATORY, CAMBRIDGE, U.S.A., and at the GOVERNMENT OBSERVATORY, MELBOURNE, in the Years 1874 to 1877.

NOTE.—The Greenwich Civil Time at which the Photograph was taken is expressed by the Day of the Year and decimals of a day, reckoning from Midnight, January 1st ch.

For convenience of reference, the Month and Day of the Month (Civil Reckoning) are added.

The letter H. signifies that the photograph was taken at Harvard; the letters Me. that the photograph was taken at Melbourne; the time given is Greenwich Civil Time.

The position-angles are reckoned from the North Pole of the Sun's Axis in the direction N., E., S., W., N.

The Groups of Spots are numbered in the order of their appearance. When there is no number in the third column, it is to be understood that there is a Facula unaccompanied by a Spot. The positions of Faculæ relative to the Spots with which they are associated are indicated by the letters *n*, *s*, *p*, *f*, *c*, denoting respectively north, south, preceding, following, concentric. The longitude and latitude of the centre of the disk are given in brackets.

The Areas of Spots and Faculæ are expressed in millionths of the Sun's visible Hemisphere.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1874. 106.485 Apr. 17	JB, B	82 Centre	0.388	61.2	113.3 (133.2)	+ 5.8 (- 5.3)	0 (0)	113 (113)	(o)	1874. 124.490 May 5	JB, B	83 85 Centre	0.660 0.128	253.2 102.6	295.6 248.1 (255.2)	- 13.6 - 5.1 (- 3.5)	16 31 (47)	133 277 (410)	(o)
107.506 Apr. 18	JB, B	82 Centre	0.210	26.7	114.3 (119.7)	+ 5.6 (- 5.2)	0 (0)	60 (60)	(o)	125.432 May 6	JB, B	83 85 86 Centre	0.797 0.083 0.951	256.0 245.6 82.0	295.1 247.1 171.5 (242.8)	- 13.2 - 5.4 + 6.5 (- 3.4)	21 11 0 (32)	188 324 248 (760)	(o)
116.556 Apr. 27	JB, B	83 Centre	0.899	101.7	296.0 (0.1)	- 12.4 (- 4.4)	0 (0)	171 (171)	(o)	126.515 May 7	JB, B	83 85 86 87 Centre	0.920 0.344 0.848 0.953	256.5 263.8 79.1 96.2	295.2 248.4 171.5 156.1 (228.5)	- 13.7 - 5.3 + 7.4 - 6.9 (- 3.3)	34 39 72 93 (238)	188 264 467 954 (1873)	(o)
117.574 Apr. 28	M, M	83 Centre	0.766	102.6	297.0 (346.7)	- 12.4 (- 4.3)	41 (41)	221 (221)	(o)	127.552 May 8	M, M	85 86 87 Centre	0.558 0.700 0.859	264.8 75.8 95.8	248.5 171.7 155.6 (214.7)	- 5.6 + 7.5 - 6.6 (- 3.2)	42 98 39 (179)	258 494 1075 (1827)	(o)
118.663 Apr. 29	M, M	83 Centre	0.594	105.8	296.6 (332.3)	- 12.6 (- 4.2)	33 (33)	189 (189)	(o)	128.497 May 9	JB, B	85 86 87 88 Centre	0.721 0.537 0.735 0.787	265.9 70.9 96.7 299.3	248.3 171.6 155.1 249.1 (202.3)	- 5.1 + 7.4 - 7.0 + 20.5 (- 3.1)	35 64 130 0 (229)	233 378 852 68 (1531)	(o)
119.577 Apr. 30	JB, B	83 84 Centre	0.428 0.284	112.1 316.8	296.3 331.5 (320.2)	- 13.0 + 7.9 (- 4.1)	40 0 (40)	205 24 (229)	(o)	130.526 May 11	JB, B	85 86 87 88 Centre	0.958 0.180 0.330 0.953	265.4 15.4 104.0 294.1	248.7 172.7 156.7 244.8 (175.4)	- 5.2 + 7.1 - 7.2 + 21.9 (- 2.9)	0 4 52 0 (56)	100 196 427 44 (767)	1149 ^f (1149)
120.539 May 1	M, M	83 84 85 Centre	0.249 0.455 0.893	130.0 295.6 92.1	296.2 331.8 244.4 (307.5)	- 13.0 + 7.7 - 3.7 (- 4.0)	32 0 0 (32)	191 34 42 (267)	(o)										
121.499 May 2	JB, B	83 84 85 Centre	0.167 0.622 0.777	187.3 288.1 91.9	296.0 331.3 243.9 (294.8)	- 13.3 + 8.0 - 3.9 (- 3.9)	45 0 11 (56)	178 29 132 (339)	(o)										
123.571 May 4	JB, B	83 85 Centre	0.500 0.330	248.6 93.8	295.9 248.2 (267.4)	- 13.7 - 4.7 (- 3.6)	25 28 (53)	164 314 (478)	(o)										

Group 82, April 17-18. Single spot, which breaks up into two on April 18.

Group 83, April 27-May 7. Single spot.

Group 84, April 30-May 2. Small scattered group.

Group 85, May 1-11. A large spot, with several small ones near it.

Group 86, May 6-11. Two large spots.

Group 87, May 7-18. A large group of many spots.

Group 88, May 9-11. A group of three small spots, widely separated.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1874. 197.516	M, M	102	0.758	279.8	58.1	+10.5	41	258			1874. 211.420	JB, B	105	0.951	294.3	257.5	+25.0				586
		103	0.644	66.5	330.6	+18.6	29	164					106a	0.527	275.5	216.8	+7.9	44	232		
July 17		104*	0.386	84.4	346.2	+6.5	36	328					106b	0.372	75.1	163.6	+10.9	4	86		
		Centre			(8.9)	(+4.7)	(106)	(750)	(o)				106c	0.515	76.1	154.4	+12.1	51	312		
													106e	0.579	89.0	149.5	+5.4	54	223		
													107	0.954	80.8	112.0	+10.5	44	189		
198.511	M, B	102	0.879	279.3	57.4	+10.5	34	168	1129p		July 31		Centre			(185.0)	(+5.9)	(197)	(1042)	(1152)	
		103	0.477	59.5	330.2	+18.3	22	127													
July 18		104*	0.166	81.2	346.3	+6.2	81	436													
		Centre			(355.7)	(+4.8)	(137)	(731)	(1129)												
200.513	JB, B		0.868	283.2	30.7	+13.3			1603				105	0.951	275.8	217.4	+7.4	43	153		506f
		103	0.233	358.7	329.3	+18.4	22	77					106b	0.201	309.1	154.3	+13.2	44	256		
		104*	0.319	275.8	347.7	+6.6	138	752					106c	0.050	279.7	147.9	+6.5	45	237		
			0.910	70.3	264.6	+19.2			1670				107	0.551	79.8	111.8	+10.7	41	313		
July 20		Centre	0.877	100.0	268.2	-7.1			1168		Aug. 3		Centre			(145.1)	(+6.1)	(240)	(1224)	(805)	
					(329.2)	(+5.0)	(160)	(829)	(4441)												
201.503	JB, B		0.875	281.0	17.3	+12.1			1074				106b	0.902	247.7	166.0	-17.0				160
		103	0.316	317.7	329.0	+18.4	15	54					106d	0.757	282.3	154.7	+13.4	37	207		
		104*	0.526	273.3	347.9	+6.0	172	714					106e	0.725	274.0	152.0	+7.2	38	207		
			0.827	69.2	261.0	+20.0			614				107	0.653	270.8	146.2	+5.3	5	96		
July 21		Centre	0.825	108.8	263.2	-12.3			924				108	0.153	306.6	112.6	+11.4	38	184		
					(316.1)	(+5.1)	(187)	(768)	(2612)				109	0.458	191.5	110.9	-20.3	47	183		
203.497	JB, B	103	0.645	293.2	328.4	+18.8	8	30					106b	0.306	176.4	104.3	-11.4	20	73		
		104*	0.851	274.4	348.2	+6.5	148	1075	625np				107	0.892	107.5	45.1	-12.5				215
July 23		105	0.970	86.0	213.7	+5.2	52	231	713np		Aug. 6		Centre			(105.4)	(+6.3)	(185)	(950)	(2265)	
		Centre			(289.8)	(+5.2)	(208)	(1336)	(1338)												
204.565	JB, B	103	0.805	288.9	328.8	+18.3	0	24					106e	0.987	273.6	159.7	+4.6	0	40		
		104*	0.957	274.4	348.9	+5.8	158	993	499n				106b	0.967	282.3	154.8	+13.5	25	229		
July 24		105	0.872	87.0	214.9	+5.3	49	261	292c				106d	0.958	275.3	152.4	+6.9	39	387		
		Centre			(275.6)	(+5.3)	(207)	(1278)	(791)				107	0.563	281.4	112.9	+11.6	26	153		
													108	0.683	230.5	112.9	-20.4	71	317		262p
205.460	JB, B	104*	0.985	274.7	344.2	+5.6	0	71	753nf				109	0.519	234.5	104.2	-11.7	14	56		
		105	0.750	88.4	215.2	+4.8	56	299	426f				110	0.990	88.7	356.9	+2.2	80	518		2811n
July 25		Centre			(263.8)	(+5.4)	(56)	(370)	(1179)		Aug. 8		Centre			(78.8)	(+6.4)	(255)	(1700)	(4670)	
210.452	JB, B		0.896	291.7	260.9	+22.0			337				107	0.864	280.1	112.8	+12.0	40	177		643nf
			0.935	259.5	265.1	-7.8			673				108	0.930	245.0	116.4	-20.4	18	188		1129f
		105	0.315	277.0	216.1	+7.7	55	276					109	0.814	250.8	104.1	-11.5	14	45		337n
		106a	0.553	79.6	164.3	+10.5	3	117					110	0.821	92.0	357.6	+2.1	103	502		1773nf
		106b	0.688	78.8	154.4	+11.9	64	347	200nf				111	0.987	110.2	335.0	-18.6	80	900		775c
July 30		106c	0.751	88.2	149.1	+5.2	28	170			Aug. 10		Centre			(52.6)	(+6.5)	(255)	(1812)	(4657)	
		Centre			(197.3)	(+5.8)	(150)	(910)	(1210)												

Group 104*, July 16-25. A very faint close cluster of small spots. The group has partly passed round the limb on July 25.

Group 105, July 23-August 3. One regular spot.

Group 106, July 30-August 8. A number of spots in a fine stream. *b*, the leader, on August 3 and the succeeding days, is a large regular spot.

Group 107, July 31-August 11. One large spot, and two or three small fragments near it. It gradually diminishes in size.

Group 108, August 3-10. A long line of small spots. It is seen much foreshortened on August 10, being very close to the limb, and is therefore difficult to measure.

Group 109, August 3-11. One small spot.

Group 110, August 8-20. A large regular spot.

Group 111, August 10-22. Three spots, one very large.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1874. 222°513	JB, B		0°960	245°9	107°8	—20°9			982		1874. 232°536	JB, B		0°910	287°1	332°4	+18°5			253
		107	0°966	280°4	114°0	+11°8	30	123	797 ^f				111	0°939	247°9	331°7	—17°9	58	306	1301 ^c
		109	0°931	254°5	104°5	—11°8	0	45	390 ^{nf}				114	0°297	174°1	264°1	—10°1	19	121	
		110	0°652	93°9	357°9	+2°5	95	536	714 ^{nf}				115	0°653	122°8	231°3	—14°9	49	261	
		111	0°936	111°9	332°7	—17°7	170	1244	1068 ^c				116	0°721	87°7	219°6	+6°5	25	78	
Aug. 11		Centre			(38°3)	(+6°6)	(295)	(1948)	(3951)		Aug. 21		Centre			(265°8)	(+7°0)	(151)	(766)	(1554)
223°439	JB, B		0°941	255°8	92°1	—10°2			684		233°475	JB, B		0°989	248°2	331°4	—20°3	0	79	1215 ^f
		110	0°479	97°3	357°8	+2°4	102	475					114	0°335	208°6	262°7	—10°0	0	82	
		111	0°844	116°6	333°7	—18°2	136	1082	1097 ^s				115	0°523	136°0	231°3	—15°5	47	272	
Aug. 12		Centre	0°908	73°3	320°2	+18°0			573		Aug. 22		Centre			(253°4)	(+7°0)	(67)	(478)	(1215)
					(26°0)	(+6°6)	(238)	(1557)	(2354)											
225°501	JB, B		0°921	281°7	66°4	+13°4			289		235°502	JB, B		0°637	247°7	263°0	—8°2	0	80	
		110	0°076	173°9	358°3	+2°4	80	420					115	0°387	191°4	231°1	—15°1	53	253	
		111	0°574	133°9	333°2	—17°3	164	1150					117	0°953	80°6	153°5	+11°1	0	44	864 ^{sp}
Aug. 14		Centre			(358°8)	(+6°7)	(244)	(1570)	(289)		Aug. 24		Centre			(226°6)	(+7°1)	(53)	(377)	(864)
226°432	JB, B	110	0°214	249°2	358°0	+2°3	76	463			236°452	JB, B	114	0°752	255°0	260°8	—6°4	0	22	359 ^{np}
		111	0°472	151°5	332°9	—17°9	124	912					115	0°471	217°6	231°3	—15°1	35	201	
		112	0°849	248°5	40°8	—14°2	10	96					117	0°864	81°6	153°8	+10°8	19	57	957 ^{sf}
Aug. 15		Centre	0°935	99°3	278°6	—6°3			373		Aug. 25		Centre			(214°1)	(+7°1)	(54)	(280)	(1701)
					(346°5)	(+6°7)	(210)	(1471)	(373)											
228°477	JB, B	110	0°630	265°1	358°2	+2°2	72	459			237°429	JB, B		0°891	256°0	262°1	—9°1			1191
		111	0°471	208°2	332°9	—17°8	127	685					115	0°607	233°1	231°2	—15°2	46	230	225
Aug. 17		Centre			(319°5)	(+6°8)	(199)	(1144)	(0)				117	0°738	82°4	153°4	+10°4	17	57	
														0°941	112°3	135°8	—18°5			672
														0°979	91°8	123°3	—0°3			184
											Aug. 26		Centre			(201°2)	(+7°1)	(63)	(287)	(2272)
230°543	JB, B	110	0°920	268°2	358°8	+1°1	8	391			238°488	JB, B		0°965	256°5	259°9	—11°0			1123
		111	0°742	237°7	333°3	—18°2	83	491						0°940	290°3	258°2	+21°5			232
		114	0°621	121°0	259°2	—12°8	0	17					115	0°757	242°9	231°2	—15°0	44	217	
		115	0°903	111°3	231°4	—15°8	45	268					117	0°547	80°2	154°0	+11°3	0	24	
Aug. 19		Centre	0°958	85°8	219°1	+6°0	0	78						0°893	117°7	129°6	—20°9			1206
					(292°2)	(+6°9)	(136)	(1245)	(0)		Aug. 27		Centre			(187°2)	(+7°1)	(44)	(241)	(2979)
														0°932	87°8	120°5	+4°7			418
231°563	JB, B	110	0°993	269°7	1°6	+0°6	0	347	843 ^{nf}		239°434	JB, B	115	0°868	248°5	231°0	—14°6	28	218	510 ^c
		111	0°847	243°9	331°4	—17°8	86	694	1759 ^c				117	0°362	77°4	153°7	+11°2	3	29	
		114	0°415	139°0	262°6	—11°5	31	191						0°920	113°5	111°1	—18°6			1588
		115	0°794	115°0	230°7	—14°9	47	328	355 ^c					0°881	81°0	112°6	+11°8			419
Aug. 20		Centre	0°859	86°5	219°2	+6°6	0	27	803 ^{nf}		Aug. 28		Centre			(174°7)	(+7°2)	(31)	(247)	(2517)
					(278°7)	(+7°0)	(164)	(1587)	(3760)											

Group 112, August 15. A few very small spots in a close cluster.

Group 114, August 19–25. A scattered group of small spots.

Group 115, August 19–29. Two spots close together.

Group 116, August 19–22. One small spot.

Group 117, August 24–31. One small spot.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1874. 240°515	JB, B		0.868	277°0	221°1	+ 9°7			293	1874. 254°434	JB, B		0.871	290°5	37°5	+ 21°4			668	
		115	0.963	251°8	231°6	- 15°3	32	168	363 ^c			119*	0.691	273°0	20°5	+ 7°3	27	129		
		117	0.140	55°9	153°6	+ 11°6	9	29				121	0.936	252°1	42°9	- 13°9	33	388	1240 ^c	
		118	0.287	147°6	151°5	- 6°9	4	81					0.875	104°8	277°8	- 9°3			564	
			0.903	115°3	100°8	- 19°2			1008	Sept. 12		Centre			(336°6)	(+ 7°2)	(60)	(517)	(2472)	
			0.887	85°8	97°6	+ 7°0			98											
Aug. 29	Centre				(160°4)	(+ 7°2)	(45)	(278)	(1762)											
242°483	JB, B	117	0.340	285°0	153°9	+ 11°9	0	8		256°464	JB, B	119*	0.963	275°2	24°6	+ 7°0	29	114	1767 ^{ef}	
		118	0.406	231°2	152°8	- 7°8	0	65					0.599	223°3	335°5	- 19°2			2405	
													0.941	80°1	238°9	+ 11°8			141	
													0.736	90°6	262°5	+ 4°5			534	
Aug. 31	Centre				(134°4)	(+ 7°2)	(0)	(73)	(0)	Sept. 14		Centre		0.783	117°8	263°8	- 16°4			303
															(309°8)	(+ 7°2)	(29)	(114)	(5150)	
243°456	JB, B	118	0.585	245°7	154°0	- 7°8	9	93		257°467	JB, B		0.933	277°7	5°9	+ 9°7			987	
			0.954	108°8	52°2	- 15°5			831			122	0.934	107°3	230°4	- 13°3	0	48		
Sept. 1	Centre				(121°6)	(+ 7°2)	(9)	(93)	(831)	Sept. 15		Centre		0.888	80°8	233°3	+ 11°5			517
															(296°5)	(+ 7°2)	(0)	(48)	(1504)	
244°418	JB, B		0.895	276°8	172°9	+ 9°4			685	261°450	JB, B		0.883	288°8	306°5	+ 19°9			107	
		118	0.736	253°3	153°9	- 7°1	14	127				122	0.417	142°4	229°6	- 12°9	0	14		
			0.907	111°1	47°6	- 15°7			1174	Sept. 19		Centre		0.896	85°3	180°0	+ 7°4			490
Sept. 2	Centre		0.944	74°8	37°1	+ 16°8			587						(244°0)	(+ 7°1)	(0)	(14)	(597)	
					(108°8)	(+ 7°2)	(14)	(127)	(2446)											
246°570	JB, B		0.942	277°3	151°4	+ 9°3			589	264°452	JB, B		0.897	250°5	264°9	- 14°1			152	
			0.878	241°7	135°8	- 20°6			722			122	0.535	231°9	229°8	- 12°9	0	13		
		118	0.964	259°3	153°2	- 8°3	45	358	805 ^c			123	0.373	48°2	187°1	+ 21°0	16	65		
		119	0.979	88°9	2°4	+ 2°6	0	69	154 ^c			124	0.739	109°2	159°6	- 9°1	76	382	330 ^{ef}	
Sept. 4	Centre		0.934	72°5	10°2	+ 18°9			298	Sept. 22		Centre		0.881	75°5	142°0	+ 16°2			202
					(80°4)	(+ 7°3)	(45)	(427)	(2568)						(204°4)	(+ 7°0)	(92)	(460)	(684)	
247°403	JB, B		0.858	241°5	122°6	- 19°9			1326	266°414	JB, B		0.915	286°3	245°5	+ 17°7			242	
		118	0.992	262°1	151°0	- 6°9	56	319					0.911	245°3	239°5	- 19°2			210	
Sept. 5	Centre		0.922	92°0	2°5	+ 1°1	0	33	1922 ^{ef}			123	0.295	327°9	188°1	+ 21°2	11	51		
					(69°4)	(+ 7°3)	(56)	(352)	(3248)			124	0.417	130°5	159°8	- 9°1	71	414		
										Sept. 24		Centre		0.914	116°9	178°5	(+ 6°9)	(82)	(465)	(822)
251°609	JB, B	119	0.206	117°5	3°4	+ 1°7	0	34												
		120	0.892	270°1	77°0	+ 3°4	0	29												
Sept. 9	Centre		0.600	233°3	43°5	- 14°7	7	52	271 ^{nf}	267°425	JB, B		0.927	290°7	233°9	+ 21°7			402	
					(13°9)	(+ 7°3)	(7)	(115)	(271)				0.902	244°3	224°6	- 19°6			192	
													123	0.451	305°2	188°3	+ 21°3	11	43	
252°439	JB, B	120	0.945	272°9	74°3	+ 5°1	0	75	380 ^{nf}			124	0.284	161°4	159°9	- 8°7	76	415		
		121	0.712	242°4	43°3	- 13°7	8	85		Sept. 25		Centre		0.980	87°8	86°7	+ 3°6	0	52	345 ^c
Sept. 10	Centre				(2°9)	(+ 7°2)	(8)	(160)	(380)						(165°1)	(+ 6°9)	(87)	(510)	(939)	

Group 118, August 29–September 5. A scattered group of faint spots.

Group 119, September 4–9. One spot.

Group 119*, September 12–14. A long row of small spots.

Group 120, September 9–10. One small spot.

Group 121, September 9–12. A group of small spots forming a circle.

Group 122, September 15–22. One small regular spot.

Group 123, September 22–28. A small spot and a very small marking at a little distance.

Group 124, September 22–October 1. One large regular spot.

Group 125, September 25–30. One small regular spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		Area for each Group (and for Day).	
1874. 268.526	JB, B		0.875	284.0	212.2	+15.5			292	1874.	JB, B		0.891	236.0	87.8	-26.3			352		
		123	0.640	295.0	188.8	+21.1	9	33					0.839	269.8	89.5	+3.3			332		
		124	0.311	211.5	160.0	-8.6	69	380				127	0.387	210.2	44.9	-13.2	158	1044			
Sept. 26		Centre	0.894	88.7	87.2	+4.3	16	55	545 ^f				0.862	56.5	334.8	+32.0			223		
					(150.6)	(+6.9)	(94)	(468)	(837)	Oct. 5		Centre	0.892	112.5	333.4	-16.7	(32.5)	(+6.4)	(158)	(1044)	1494
																			(2401)		
270.509	JB, B	123	0.901	289.3	188.7	+20.3	0	18	288 ^s	280.508	JB, B	127	0.812	249.8	43.6	-12.4	98	734			
		124	0.629	247.7	160.3	-8.3	67	383				128	0.440	283.8	18.2	+11.6	0	15			
Sept. 28		Centre	0.604	92.7	87.4	+3.8	0	16		Oct. 8		Centre			(352.5)	(+6.2)	(98)	(749)	(0)		
			0.982	105.0	47.6	-13.3	148	1002	1231 ^p												
					(124.4)	(+6.8)	(215)	(1419)	(1519)												
271.516	JB, B		0.923	280.3	179.1	+12.1			952	282.409	B, B	127	0.973	256.4	42.0	-11.7	45	335	2048 ^s		
		124	0.781	253.7	160.1	-8.2	56	341				128	0.771	281.7	18.0	+12.9	8	103			
		125	0.402	96.1	87.6	+3.7	0	15		Oct. 10		Centre	129	0.407	197.4	334.7	-16.7	47	234	(2048)	
		126	0.800	108.6	60.8	-10.5	10	59	456 ^c						(327.4)	(+6.1)	(100)	(672)			
		127	0.936	106.8	44.3	-13.1	105	1399	2251 ^f												
Sept. 29		Centre	0.919	78.8	43.7	+12.9			791	285.491	M, M	129	0.806	244.7	336.0	-16.3	38	145	(0)		
			0.937	70.8	40.7	+20.3			448	Oct. 13		Centre			(286.8)	(+5.9)	(38)	(145)			
					(111.1)	(+6.7)	(171)	(1814)	(4898)												
272.476	JB, B	124	0.896	257.4	160.2	-8.1	55	285		287.538	JB, B	129	0.986	252.2	337.7	-16.4	0	77	1187 ^f		
		125	0.192	107.1	88.0	+3.3	0	10				130	0.643	82.2	219.7	+9.4	11	71			
		126	0.654	116.3	61.9	-11.5	15	70		Oct. 15		Centre	131	0.953	82.0	187.1	+9.4	57	171	522 ^f	
Sept. 30		Centre	0.847	110.7	44.1	-13.6	87	868							(259.8)	(+5.7)	(68)	(319)	(1709)		
					(98.5)	(+6.7)	(157)	(1233)	(0)												
273.461	JB, B	124	0.974	259.9	160.9	-8.3	69	281	1755 ^{sf}	291.538	JB, B	130	0.226	285.4	219.7	+8.7	0	26			
		126	0.495	128.2	62.1	-11.7	9	38				131	0.324	79.2	188.3	+8.6	20	122			
		127	0.720	116.3	44.0	-13.6	159	1151	1020 ^{sf}	Oct. 19		Centre	132	0.743	105.5	161.0	-7.7	22	135	(0)	
Oct. 1		Centre	0.941	83.3	14.9	+8.4			533						(207.0)	(+5.4)	(42)	(283)			
					(85.5)	(+6.6)	(237)	(1470)	(3308)												
275.454	JB, B		0.879	248.7	117.0	-15.3			324	292.503	JB, B	130	0.394	280.6	217.3	+9.0	13	52			
		126	0.316	183.5	60.3	-11.8	1	28				131	0.113	59.3	188.7	+8.6	11	80			
		127	0.426	142.1	43.7	-13.3	195	1426		Oct. 20		Centre	132	0.579	111.0	161.4	-7.5	22	79	(0)	
			0.865	103.7	358.2	-9.9			247						(194.3)	(+5.3)	(46)	(211)			
			0.907	76.3	353.5	+15.1			184												
Oct. 3		Centre	0.922	71.5	351.3	+19.7			1166												
					(59.2)	(+6.5)	(196)	(1454)	(1921)	Oct. 22		Centre				(167.3)	(+5.1)	(38)	(209)	(2327)	

Group 126, September 29–October 3. One small spot, and two very small specks near.

Group 127, September 28–October 10. A close cluster composed of many spots.

Group 128, October 8–10. At first one very small spot; but on October 10 it has extended into a row of several small fragments.

Group 129, October 10–15. Three spots arranged in a line.

Group 130, October 15–22. Two small spots. The smaller of these grows gradually fainter, and disappears on October 20.

Group 131, October 15–23. Single spot.

Group 132, October 19–23. Single spot.

Group 133, October 22. Single spot.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1874. 295.514	JB, B	131	0.890	276.8	217.7	+ 8.4			326	1874. 319.512	JB, B	135	0.868	253.7	256.7	- 12.8			505
		132	0.580	276.8	189.9	+ 8.1	0	27		Nov. 16	Centre	135	0.277	70.9	182.9	+ 7.6	68	368	(505)
Oct. 23		Centre	0.259	206.6	161.2	- 8.3	25	90	(326)	320.574		135					55	234	(0)
					(154.6)	(+ 5.0)	(25)	(117)		Nov. 17							(55)	(234)	
300.531	JB, B		0.918	295.7	154.4	+ 25.3			332	323.492	JB, B	135	0.656	279.0	186.3	+ 7.4	88	537	589 ^p
			0.951	259.7	159.2	- 8.3			707			136	0.960	86.0	72.2	+ 4.4	25	119	510 ^c
			0.800	116.8	39.8	- 18.2			1488	Nov. 20	Centre	137	0.997	74.5	60.2	+ 15.6	0	247	
Oct. 28		Centre	0.916	74.3	22.0	+ 16.2	(88.4)	(+ 4.5)	(0)						(145.7)	(+ 2.0)	(113)	(903)	(1099)
					(88.4)	(+ 4.5)	(0)	(0)	(4527)	326.459	B, B		0.860	259.3	165.1	- 8.4			110
306.552	JB, B	134	0.638	121.5	334.6	- 16.2	82	446	(0)			135	0.991	277.0	188.7	+ 7.1	19	326	1067 ^f
Nov. 3		Centre			(9.0)	(+ 4.0)	(82)	(446)				136	0.540	86.1	74.1	+ 3.5	20	102	
										307.488	JB, B	137	0.753	71.2	59.2	+ 15.1	41	284	649 ^f
			0.819	248.2	48.6	- 15.3			1428	Nov. 23	Centre		0.940	109.2	38.4	- 17.4			809
Nov. 4		Centre	0.498	133.0	334.4	- 16.2	95	518	(1428)						(106.6)	(+ 1.6)	(80)	(712)	(2635)
					(356.7)	(+ 3.9)	(95)	(518)		327.515	B, B	136	0.310	83.4	74.8	+ 3.4	13	69	
308.493	JB, B		0.873	246.0	40.6	- 18.8			806	Nov. 24	Centre	137	0.588	66.8	58.9	+ 14.6	24	251	(0)
Nov. 5		Centre	0.378	155.8	334.2	- 16.4	90	486	(806)						(92.7)	(+ 1.5)	(37)	(320)	
					(343.4)	(+ 3.7)	(90)	(486)		330.514	B, B	136	0.384	274.5	75.6	+ 2.7	2	21	
309.575	JB, B	134	0.355	191.7	333.5	- 16.6	63	458	(0)	Nov. 27	Centre	137	0.251	339.8	58.2	+ 14.6	37	205	
Nov. 6		Centre			(329.2)	(+ 3.6)	(63)	(458)					0.960	105.4	34.0	- 14.5			628
															(53.1)	(+ 1.1)	(39)	(226)	(628)
310.469	JB, B		0.860	286.5	16.2	+ 15.9			334	337.445	JB, B		0.951	247.5	32.0	- 21.2	(0)	(0)	510
Nov. 7		Centre	0.435	221.2	334.6	- 15.7	94	557	(334)	Dec. 4	Centre				(321.8)	(+ 0.2)			(510)
					(317.4)	(+ 3.5)	(94)	(557)		340.447	JB, B	138	0.162	238.6	290.2	- 5.0	14	111	
312.582	JB, B	134	0.737	246.5	333.7	- 14.7	156	820	(0)	Dec. 7	Centre		0.959	85.3	209.1	+ 4.5	(14)	(111)	178
Nov. 9		Centre			(289.5)	(+ 3.3)	(156)	(820)							(282.3)	(- 0.2)			(178)
										342.704	H, EP	138	0.685	263.0	295.4	- 5.1	0	39	
314.471	JB, B	134	0.948	254.6	334.4	- 13.5	18	451	(0)			138	0.643	263.8	292.2	- 4.3	0	15	
Nov. 11		Centre			(264.6)	(+ 3.1)	(18)	(451)				138*	0.450	243.1	276.6	- 12.1	0	44	
												138*	0.365	237.0	270.6	- 11.9	0	20	
315.426	JB, B	134	0.985	253.1	330.4	- 16.0	0	124	502 ^c			140a	0.872	81.3	192.4	+ 7.4	5	67	
Nov. 12		Centre	0.960	84.4	178.3	+ 6.2	0	87	2042 ^{np}			140c	0.937	85.3	183.3	+ 4.3	0	27	
					(252.0)	(+ 3.0)	(0)	(211)	(2544)	Dec. 9	Centre	140d	0.965	84.5	178.0	+ 5.2	0	68	205 ^c
316.472	JB, B	135	0.851	83.8	180.1	+ 6.8	35	149	764				0.948	78.1	181.8	+ 11.1			335
Nov. 13		Centre			(238.4)	(+ 2.8)	(35)	(149)	(764)						(252.5)	(- 0.4)	(5)	(280)	(540)

Group 134, November 3-12. Two rather large spots. The first and larger spot throws off several fragments on November 7.
 Group 135, November 12-23. One spot. A second small spot appears on the second photograph on November 12. The group entirely changes its character on the following days, and on November 16 has changed into a very long irregular line of small spots. On November 23 the greater portion of the group has disappeared round the limb.
 The area only of the group, not its position, was measured on November 17.
 Group 136, November 20-27. One spot. On November 23 several very small markings appear close behind it. These disappear again on November 27.
 Group 137, November 20-27. The spot is seen as a notch in the limb on November 20.
 Group 138, December 7-11. A line of very small spots.
 Group 138*, December 9. A few small spots in a straight stream.
 Group 140, December 9-18. A very scattered group, composed at first of four spots, *a*, *b*, *c*, and *d*. Spot *a* breaks up on December 14 into several little spots, and two fresh spots appear, *e* and *f*. Spot *d* disappears on December 14, and spot *b* on December 18.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Area for each Group (and for Day).	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1874. 344.477	JB, B	138	0.876	263.8	290.0	- 5.7	0	36	462np		1874. 347.498	JB, B	140e	0.235	29.2	182.7	+ 10.7	0	25		
		139	0.297	319.2	240.6	+ 12.3	0	18					140f	0.297	47.4	176.5	+ 10.5	17	60		
		140a	0.619	76.7	191.9	+ 7.6	15	48	349nf		Dec. 14		Centre			(189.3)	(- 1.1)	(43)	(269)	(o)	
		140b	0.623	79.8	191.3	+ 5.8	0	9													
		140c	0.703	84.1	184.9	+ 3.7	22	95													
		140d	0.782	83.2	178.2	+ 4.9	22	80													
Dec. 11		Centre			(229.2)	(- 0.7)	(59)	(286)	(811)		350.583	JB, B	140a	0.716	281.6	193.5	+ 7.2	4	69		
													140c	0.625	277.3	186.9	+ 3.4	10	57		
													140d	0.562	285.0	181.7	+ 7.1	0	5		
													140e	0.618	288.5	185.1	+ 10.1	0	40		
													140f	0.502	292.7	176.6	+ 9.9	0	26		
345.742	H, BP	140a	0.381	68.4	191.6	+ 7.4	22	249			Dec. 17		Centre			(148.7)	(- 1.5)	(14)	(197)	(o)	
H.		140c	0.481	78.8	184.3	+ 4.7	21	137													
		140d	0.596	79.9	176.5	+ 5.4	9	76													
Dec. 12		Centre	0.957	55.3	143.4	+ 32.7			511		351.513	JB, B	140a	0.852	278.8	194.1	+ 6.7	0	51		
					(212.4)	(- 0.7)	(52)	(462)	(511)				140c	0.776	275.4	186.9	+ 3.2	0	23		
													140e	0.768	284.4	185.3	+ 9.9	0	31		
347.498	JB, B	140a	0.158	336.7	192.9	+ 7.2	11	63			Dec. 18		Centre	0.672	286.2	177.1	+ 9.6	0	21		
		140c	0.106	29.9	186.3	+ 4.2	15	90								(136.5)	(- 1.6)	(o)	(126)	(o)	
		140d	0.236	63.0	177.2	+ 5.1	0	31													

Group 139, December 11. A group of very small spots.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 1.527 Jan. 2	M, M	141 Centre	0.567	250.6	331.9 (298.7)	-13.6 (-3.4)	32 (32)	215 (215)	(o)		1875. 30.520 Jan. 31	JB, B		0.975 0.869	285.7 72.2	352.0 219.4 (277.0)	+13.8 +12.2 (-6.1)	(o)	(o)	427 1012 (1439)	
4.550 Jan. 5	JB, B	141 Centre	0.953 0.930	256.7 82.0	331.3 191.3 (258.9)	-13.8 +6.0 (-3.7)	31 (31)	140 (140)	16708f 437 (2107)		31.773 H. Feb. 1	H, EP	144 Centre	0.928 0.917 0.915	251.7 67.2 80.5	329.2 197.9 195.5 (260.5)	-19.3 +18.0 +6.1 (-6.2)	o (o)	150 (150)	437 265c 502 (1204)	
5.486 Jan. 6	M, M		0.993 0.945 0.906	249.3 297.0 81.3	330.5 313.5 182.6 (246.6)	-21.0 +23.9 +6.2 (-3.8)	(o)	(o)	391 235 416 (1042)		34.485 Feb. 4	JB, B	144 Centre	0.593 0.859	45.5 253.2	198.3 284.3 (224.8)	+18.8 -17.7 (-6.4)	17 (17)	91 (91)	172 (172)	
15.543 Jan. 16	JB, B	142 Centre	0.945 0.821 0.547	278.5 257.2 98.9	184.2 169.4 81.2 (114.3)	+6.4 -13.3 -8.9 (-4.9)	6 (6)	42 (42)	944 697 (1641)		35.657 H. Feb. 5	H, EP	144a 144b 144c Centre	0.887 0.453 0.486 0.505	290.7 23.0 196.4 27.7	268.3 198.6 196.4 (209.3)	+15.0 +18.3 +19.7 (-6.4)	12 o o (12)	100 5 22 (127)	435 (435)	
21.530 Jan. 22	JB, B	142* 143 Centre	0.909 0.629 0.289 0.879	258.0 287.0 355.6 107.8	101.0 72.4 36.6 333.8 (35.3)	-13.2 +6.2 +11.2 -18.2 (-5.4)	119 17 (136)	559 79 (638)	139 409np 1341 (1889)		36.774 H. Feb. 6	H, EP	144a 144b 144c Centre	0.931 0.425 0.451 0.460	289.1 350.3 354.5 359.9	259.9 198.8 197.1 (194.5)	+15.1 +18.2 +20.1 (-6.5)	21 o o (21)	69 10 16 (95)	478 (478)	
24.554 Jan. 25	JB, B	142* 143 Centre	0.970 0.707	277.2 291.8	70.5 37.3 (355.5)	+5.5 +11.0 (-5.7)	o o (o)	57 39 (96)	826c (826)		37.215 Me. Feb. 7	A, H	144 144a Centre	0.944 0.461 0.454 0.925	288.5 348.7 339.4 171.5	256.6 194.3 198.5 162.3 (188.8)	+15.0 +20.7 +18.7 -72.2 (-6.5)	o 20 (20)	24 97 (121)	339 265 (604)	
25.734 Jan. 26	H, EP	143* Centre	0.821 0.869	300.6 293.9	28.9 36.1 (339.9)	+21.0 +17.5 (-5.7)	o (o)	78 27 (27)	135c (213)		38.699 H. Feb. 8	H, EP	144 Centre	0.618	311.2	198.4 (169.2)	+18.2 (-6.6)	8 (8)	59 (59)	441c (441)	
26.625 Jan. 27	JB, B		0.925 0.916	286.0 72.3	33.6 264.5 (328.2)	+12.4 +13.7 (-5.8)	(o)	(o)	486 524 (1010)		39.229 Me. Feb. 9	A, H	144a 144c 144* Centre	0.688 0.641 0.978 0.941 0.935	306.4 311.8 82.5 100.4 71.4	197.8 192.6 84.3 91.0 96.0 (162.2)	+18.7 +19.6 +5.9 -12.6 +14.8 (-6.6)	9 o 23 (32)	51 4 90 (145)	534c 228 702 (1464)	
29.552 Jan. 30	JB, B		0.892 0.880 0.919	294.3 251.2 84.0	348.5 351.4 (289.7)	+18.5 -19.3 (-6.0)	(o)	(o)	225 651 403 (1279)												

Group 141, 1875. January 2-5. Single spot.

Group 142, January 16. A group of two or three very small spots.

Group 142*, January 22-25. Two large spots close together, and a few small markings round them.

Group 143, January 22-25. A small spot, surrounded by a few very small and scattered markings. It becomes slightly more condensed on January 25.

Group 143*, January 26. A small spot.

Group 144, February 1-9. A number of spots in an irregular stream.

Group 144*, February 9-11. A regular spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 40°687 H. Feb. 10	H, EP	144* Centre	0°858 0°869	292°9 79°8	198°1 84°1 (143°1)	+15°7 +5°5 (-6°7)	0 (0)	40 (40)	682 285c (967)		1875. 55°531 JB, B Feb. 25	145 146 147 Centre	0°475 0°232 0°677	334°5 249°7 74°6	320°0 320°3 266°9 (307°6)	+18°3 -11°6 +4°9 (-7°2)	131 53 22 (206)	696 215 108 (1019)	355 ^{nf} (355)		
41°205 Me. Feb. 11	A, H	144* Centre	0°882 0°798	294°4 78°5	193°5 84°7 (136°2)	+17°8 +5°0 (-6°7)	12 (12)	39 (39)	734 941c (1675)		56°558 Feb. 26	145 146 147 Centre	Photograph missing.				145 16 0 (161)	714 144 27 (885)	(0)		
44°019 Me. Feb. 14	A, H	144† Centre	0°336 0°878	358°2 72°5	99°8 40°6 (99°2)	+12°7 +11°7 (-6°9)	0 (0)	10 (10)	343 (343)		57°030 Me. Feb. 27	145 146 147* 147 147 Centre	0°652 0°549 0°442 0°357 0°479 0°944	308°5 260°1 257°2 57°2 64°6 103°4	320°1 321°1 313°8 270°4 262°2 216°1 (287°8)	+17°8 -11°4 -12°1 +4°3 +5°4 -15°0 (-7°2)	108 18 9 17 0 (152)	614 119 36 80 20 (869)	248 (248)		
47°075 Me. Feb. 17	A, H		0°957	108°1	344°6 (58°9)	-19°3 (-7°0)	0 (0)	0 (0)	225 (225)		58°027 Me. Feb. 28	145 146 147* 147 Centre	0°787 0°722 0°631 0°212 0°868 0°921	300°0 260°9 259°7 21°2 102°3 75°0	320°4 321°2 313°9 270°5 213°9 210°0 (274°7)	+18°2 -11°6 -12°1 +4°2 -14°3 +10°8 (-7°2)	156 15 0 13 (184)	731 114 9 79 (933)	417c (1068)		
48°448 Feb. 18	JB, B	145 Centre	0°789 0°840 0°989	293°0 111°8 70°5	89°0 343°8 322°7 (40°9)	+13°3 -22°1 +17°9 (-7°0)	134 (134)	478 (478)	545 211 166 ^{np} (922)		59°077 Me. Mar. 1	145 146 147 147† Centre	0°900 0°863 0°253 0°960	294°4 260°4 320°9 81°1	316°3 321°1 270°1 188°5 (260°9)	+18°3 -11°9 +4°0 +6°4 (-7°2)	123 16 14 0 (153)	654 76 71 11 (812)	898c 353c (1690)		
50°075 Me. Feb. 20	A, H	145 146 146* Centre	0°907 0°893 0°846 0°955	281°2 64°9 99°3 66°1	83°0 321°1 321°2 311°1 (19°5)	+7°0 +18°6 -11°6 +20°3 (-7°1)	125 28 0 (153)	606 173 49 (828)	560 5000 732c (1792)		60°209 Me. Mar. 2	145 146 147 147† Centre	0°977 0°968 0°448 0°782 0°782	290°5 259°8 293°9 72°6 75°6	320°1 322°2 270°0 197°1 196°4 (245°9)	+18°2 -11°7 +3°9 +8°8 +6°5 (-7°2)	109 0 11 13 13 (146)	634 31 66 39 62 (832)	994 ^{sf} 390 ^{nf} (1732)		
51°517 Feb. 21	JB, B	145 146 Centre	0°732 0°623	57°0 99°7	320°4 321°9 (0°5)	+18°1 -11°6 (-7°1)	168 62 (230)	725 383 (1108)	(0)		61°266 Me. Mar. 3	147 147† 147† 147† Centre	0°644 0°602 0°645 0°691	285°3 67°0 70°8 72°1	270°4 198°1 194°3 190°7 (232°0)	+4°2 +7°7 +6°6 +6°9 (-7°2)	10 10 0 0 (20)	49 71 9 23 (152)	227c (227)		
52°527 Feb. 22	JB, B	145 146 147 Centre	0°601 0°428 0°986	46°1 101°3 83°1	320°2 322°0 267°9 (347°2)	+18°2 -11°2 +5°6 (-7°1)	146 48 0 (194)	658 273 166 (1097)	(0)												
53°496 Feb. 23	JB, B	145 146 147 Centre	0°489 0°223 0°946	28°9 107°0 81°4	320°0 321°9 264°6 (334°4)	+18°3 -10°7 +5°7 (-7°2)	136 63 19 (218)	679 359 156 (1194)	423 ⁿ (423)												

Group 144†, February 14. A small spot.

Group 145, February 18–March 2. A very large spot, with two or three small ones near it.

Group 146, February 20–March 2. One large spot, surrounded by many small ones.

Group 146*, February 20. A small spot following Group 145.

Group 147, February 22–March 5. Two small spots. The preceding spot alone has appeared by February 22. The following and smaller spot decreases in size as the group crosses the disk, until on March 5 only the preceding spot is left.

Group 147*, February 27–28. A small spot following Group 146.

Group 147†, March 1–3. A number of small spots in an irregular stream.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1875. 63.446	JB, B	147	0.934	277.0	271.4	+ 3.8	0	31	584 ⁿ	1875. 71.060	A, H	149*	0.970	279.4	177.5	+ 7.3	16	108	485
Mar. 5		148	0.411	348.5	208.2	+ 16.4	18	90		Me.	150	0.581	92.1	67.4	- 7.1	28	180	394 ^f	
		Centre			(203.3)	(- 7.3)	(18)	(121)	(584)			150	0.831	89.7	46.8	- 3.8	28	180	208
										Mar. 13		Centre	0.955	71.5	33.4	+ 15.2	(44)	(288)	(1087)
64.070	A, H		0.967	285.6	267.9	+ 13.1			243						(103.0)	(- 7.2)			
Me.			0.908	281.4	258.7	+ 7.2			336										
Mar. 6		148	0.446	331.4	207.9	+ 16.0	19	168		72.644	JB, B	149*	0.262	93.2	66.9	- 7.8	0	14	
		Centre			(195.1)	(- 7.2)	(19)	(168)	(579)	Mar. 14		150	0.584	87.0	46.5	- 4.1	28	169	(o)
												Centre			(82.1)	(- 7.2)	(28)	(183)	
65.082	A, H		0.929	284.7	247.7	+ 9.8			285										
Me.		148	0.571	312.3	207.7	+ 16.1	34	322		73.584	JB, B	150	0.394	83.3	46.8	- 3.9	25	166	(o)
Mar. 7		149	0.741	257.1	229.7	- 14.4	19	139		Mar. 15		Centre			(69.7)	(- 7.1)	(25)	(166)	
		149	0.700	254.9	226.1	- 15.7	8	55											
		Centre			(181.7)	(- 7.2)	61	(516)	(285)										
66.884	H, WR	148	0.838	294.1	210.5	+ 15.6	9	79		74.127	A, H	149*	0.076	232.7	66.0	- 9.8	0	10	
		148	0.787	298.2	204.3	+ 16.9	5	84		Me.	150	0.273	78.5	46.7	- 3.7	11	122		
H.		149	0.954	256.6	231.5	- 14.9	0	55		Mar. 16		Centre			(62.5)	(- 7.1)	(11)	(132)	(o)
Mar. 8		149	0.912	254.6	224.6	- 17.0	0	81											
		Centre			(158.0)	(- 7.2)	(14)	(299)	(o)	75.760	H, WR	150*	0.275	258.4	56.9	- 10.0	6	35	
												150*	0.215	256.4	53.3	- 9.9	3	34	
												150	0.125	300.0	47.3	- 3.5	11	45	
												150†	0.191	87.4	30.1	- 6.5	4	27	
67.547	JB, B	148	0.893	292.8	208.2	+ 16.5	51	281	1203 ^{sp}			151	0.993	70.8	320.8	+ 18.0	55	529	
		149	0.964	254.4	225.1	- 17.0	0	179	104 ^{np}										
Mar. 9		Centre	0.864	72.1	92.5	+ 11.5			371	Mar. 17		Centre	0.965	102.0	325.3	- 13.4	(79)	(670)	577
					(149.3)	(- 7.2)	(51)	(460)	(1678)						(41.1)	(- 7.1)			(577)
68.528	JB, B	148	0.977	287.6	211.2	+ 15.4	27	247	983 ^f	76.570	JB, B	150*	0.897	285.5	91.7	+ 10.5	21	85	435
		149*	0.931	94.5	67.4	- 6.8	20	182	686 ^{sf}			150*	0.410	262.7	54.6	- 9.4	6	26	
Mar. 10		Centre			(136.4)	(- 7.2)	(47)	(429)	(1669)	Mar. 18		151	0.294	281.1	47.1	- 3.5	91	384	342 ^f
												Centre	0.955	69.2	321.2	+ 17.5	(118)	(495)	518
													0.909	102.2	324.3	- 14.0			(1295)
															(30.4)	(- 7.1)			
69.597	JB, B		0.908	282.6	185.1	+ 8.2			589	77.691	H, WR	150*	0.694	263.9	59.8	- 9.3	0	9	
		149*	0.819	93.5	67.1	- 7.0	31	213	789 ^s			150*	0.615	263.0	53.7	- 9.8	0	29	
Mar. 11		150	0.971	91.9	46.0	- 3.6	48	224				150	0.531	274.5	47.5	- 3.6	0	18	
		Centre			(122.3)	(- 7.2)	(79)	(437)	(1378)			150†	0.273	268.9	31.5	- 7.0	0	20	
										Mar. 19		151	0.854	64.4	321.9	+ 17.6	50	363	450 ^f
												Centre			(15.6)	(- 7.0)	(50)	(439)	(450)
70.680	H, EP	149†	0.967	279.0	181.9	+ 6.8	0	13	384 ^{nf}	78.076	A, H		0.969	280.5	84.6	+ 8.3	0	23	317
		149*	0.651	92.8	67.2	- 7.3	8	57		Me.	150*	0.754	263.9	59.7	- 9.2	0	14	931 ^{nf}	
H.		149*	0.673	95.4	65.5	- 9.0	0	22			150*	0.670	263.2	52.8	- 9.8	4	14	881 ^f	
Mar. 12		150	0.875	90.7	46.9	- 4.2	29	92	504 ^c		150	0.598	274.0	47.0	- 3.3	2	17		
		Centre			(108.0)	(- 7.2)	(37)	(184)	(888)										

Group 148, March 5-10. Several small spots ranged in a straight line.

Group 149, March 7-9. One spot.

Group 149*, March 10-16. One spot, regular in shape. It has divided into two parts by March 12, and is not seen on March 15.

Group 149†, March 12. A small spot.

Group 150, March 11-21. Single spot.

Group 150*, March 17-21. Some small spots, forming *sp* Group 150.

Group 150†, March 17-20. A small spot, not seen on March 18; probably hidden by the wire.

Group 151, March 17-29. One large spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 78°076 Me. Mar. 20	A, H	150† 151* 151 Centre	0.353 0.147 0.817	268.6 142.8 62.0	31.2 5.3 321.3 (10.5)	— 7.1 — 13.7 + 18.0 (— 7.0)	0 0 57 (63)	18 70 329 (471)		(2129)
79°207 Me. Mar. 21	A, H	150* 150* 150 151* 151 Centre	0.833 0.817 0.788 0.211 0.672 0.972	262.9 261.9 271.0 235.6 53.4 101.1	52.0 50.8 47.5 5.9 321.2 278.2 (355.6)	— 9.8 — 10.7 — 3.5 — 13.7 + 17.8 — 12.4 (— 7.0)	0 0 0 8 62 (70)	8 11 14 107 362 (502)	807p 77onf 150 (1727)	
80°725 H. Mar. 22	H, WR	151* 151 Centre	0.925 0.557 0.482	264.5 253.3 30.1	43.5 8.9 320.8 (335.5)	— 7.7 — 15.0 + 17.9 (— 6.9)	0 0 41 (41)	113 247 343 (360)	438	(438)
81°435 Mar. 23	JB, B	151* 151 Centre	0.911 0.687 0.434 0.829	264.3 256.7 12.4 77.5	32.3 9.6 320.6 271.9 (326.2)	— 8.1 — 14.1 + 18.1 + 6.3 (— 6.9)	111 72 (183)	459 343 (802)	230 276 (506)	
82°115 Me. Mar. 24	A, H	151* 151 Centre	0.947 0.792 0.425	257.9 250.9 346.7	29.3 9.5 323.1 (317.2)	— 13.7 — 19.3 + 17.5 (— 6.9)	87 55 (142)	702 296 (998)	229 336c (565)	
83°448 Mar. 25	JB, B	151* 151 Centre	0.931 0.542 0.921	256.9 321.0 105.5	8.9 320.6 231.9 (299.7)	— 14.6 + 18.5 — 16.9 (— 6.8)	102 66 (168)	491 325 (816)	879c 237 (1116)	
84°608 Mar. 26	JB, B	151* 151 Centre	0.986 0.690 0.951	257.0 306.3 71.4	5.9 320.1 215.5 (284.4)	— 13.9 + 18.6 + 15.3 (— 6.8)	0 60 (60)	215 323 (538)	171c 569 (740)	
85°428 Mar. 27	JB, B	151 Centre	0.795 0.902	300.0 70.1	320.0 212.4 (273.5)	+ 18.8 + 14.7 (— 6.7)	41 (41)	288 (288)	557 (557)	
1875. 86°530 Mar. 28	JB, B	151 152 Centre	0.875 0.907 0.226 0.924	298.9 294.8 40.6 78.3	314.0 319.4 250.6 193.2 (259.0)	+ 21.2 + 19.1 + 3.2 + 8.1 (— 6.7)	57 330 0 (57)	330 36 (366)	576 1193 (1769)	
87°713 H. Mar. 29	H, WR	151 152 152 152 152* 152* Centre	0.982 0.265 0.243 0.192 0.188 0.680 0.713 0.861	290.6 317.5 327.6 333.3 320.5 107.0 107.2 79.4	319.1 253.7 250.9 248.3 250.2 200.9 198.2 185.4 (243.4)	+ 18.7 + 4.7 + 5.2 + 3.3 + 1.7 — 16.4 — 16.9 + 5.6 (— 6.6)	27 19 0 10 0 0 6 (62)	224 85 20 88 5 31 40 (493)	8398f 764 (1603)	
88°703 H. Mar. 30	H, WR	152 152 152* 152* Centre	0.441 0.400 0.347 0.479 0.547	295.1 297.8 298.8 111.0 111.3	253.9 251.1 248.1 202.8 198.3 (230.4)	+ 4.8 + 4.7 + 3.4 — 15.7 — 17.0 (— 6.5)	21 5 17 0 23 (66)	137 34 50 36 59 (316)	(0)	
89°752 H. Mar. 31	H, WR	152 152 152 152* Centre	0.642 0.594 0.552 0.267 0.355 0.898	285.4 285.6 286.2 127.6 120.9 76.7	254.7 251.3 248.4 203.9 198.1 154.5 (216.5)	+ 4.7 + 3.9 + 3.3 — 15.7 — 16.6 + 8.9 (— 6.5)	28 0 8 8 26 (70)	172 20 46 57 46 (341)	287 (287)	
90°587 WR, H	WR, H	152 152 152 152* 152* 152* Centre	0.689 0.723 0.771 0.221 0.189 0.170	282.0 281.7 281.2 142.8 155.8 166.2	247.7 250.4 254.6 197.4 200.8 203.0 (205.4)	+ 3.5 + 3.9 + 4.4 — 16.5 — 16.3 — 15.9 (— 6.4)	0 0 0 9 0 0 (9)	9 38 120 78 7 65 (317)	(0)	
91°460 JB, B Apr. 2	JB, B	152 152* Centre	0.880 0.209	278.7 220.8	254.4 202.1 (194.0)	+ 4.5 — 15.4 (— 6.4)	28 33 (61)	122 194 (316)	528f (528)	

Group 151*, March 20-26. Two large spots.

Group 152, March 28-April 2. A number of small spots.

Group 152*, March 29-April 4. A number of small spots in a straight line.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 93 ⁵⁶⁷	JB, B	152*	0.834	295.3	218.1	+17.0			275	
		153	0.615	252.7	203.5	-15.5	0	55		
			0.835	102.1	109.3	-13.5	0	11	283 ⁿ	
Apr. 4	Centre		0.912	78.0	102.1	+8.2			341	
					(166.2)	(-6.3)	(0)	(66)	(899)	
94 ⁵⁰⁷	JB, B	153*	0.921	286.8	218.2	+12.8			449	
Apr. 5	Centre		0.263	20.7	148.4	+8.0	0	16		
					(153.7)	(-6.2)	(0)	(16)	(449)	
95 ⁴²⁷	JB, B	153*	0.916	285.8	205.6	+11.9			405	
Apr. 6	Centre		0.265	335.9	147.8	+7.8	2	51		
					(141.6)	(-6.1)	(2)	(51)	(405)	
96 ⁶⁶⁷	H, WR	153*	0.941	254.8	196.1	-16.3			393	
Apr. 7	Centre		0.453	299.7	148.6	+7.4	3	59		
					(125.3)	(-6.0)	(3)	(59)	(393)	
97 ⁵²²	JB, B	153*	0.597	291.9	147.8	+7.9	0	17		
Apr. 8	Centre				(114.0)	(-6.0)	(0)	(17)	(0)	
98 ¹⁰⁸	A, H	153*	0.739	285.9	151.9	+7.5	0	16		
Apr. 9	Centre				(106.3)	(-6.0)	(0)	(16)	(0)	
99 ⁶⁴¹	H, WR	153†	0.907	281.4	149.6	+7.8			341	
		153†	0.314	304.8	100.9	+4.7	7	15		
		154	0.259	309.1	97.6	+3.7	5	42		
		154	0.885	77.5	25.4	+8.2	0	28	440 ^c	
		155	0.905	76.0	23.1	+10.0	0	21		
Apr. 10	Centre		0.962	102.6	11.2	-13.7	53	434	502 ^c	
					(86.0)	(-5.8)	(65)	(540)	(1283)	
102 ⁵⁶⁵	JB, B	153†	0.812	281.3	100.8	+5.8	0	34		
		153†	0.823	281.0	101.0	+5.7	0	44	287 ^{np}	
		154	0.385	48.6	30.5	+9.3	24	100		
		155	0.615	105.8	10.0	-14.1	82	482		
Apr. 13	Centre				(47.4)	(-5.6)	(106)	(660)	(287)	
103 ⁵³¹	JB, B	153†	0.915	278.6	99.8	+5.6	0	79	737 ⁿ	
		154	0.263	12.6	31.3	+9.3	32	105		
		155	0.437	110.8	9.8	-13.9	80	429		
Apr. 14	Centre				(34.6)	(-5.5)	(112)	(613)	(737)	
1875. 104 ⁶⁷¹	H, EP	154	0.329	318.5	32.3	+8.9	19	101		
		154	0.308	326.6	29.5	+9.5	0	9		
		154	0.288	332.1	27.4	+9.3	0	7		
		155	0.223	134.4	10.2	-14.3	59	370		
Apr. 15	Centre		0.934	65.1	314.7	+20.9			707	
					(19.6)	(-5.4)	(78)	(487)	(707)	
105 ⁵⁴³	JB, B	154	0.449	303.2	30.3	+9.2	40	169		
		155	0.161	193.9	10.4	-14.3	75	336		
Apr. 16	Centre		0.861	60.6	314.3	+21.9			823	
					(8.1)	(-5.4)	(115)	(505)	(823)	
106 ⁴⁷⁰	JB, B	154	0.615	293.0	30.7	+9.5	22	148		
		155	0.285	237.5	10.1	-13.9	66	330		
			0.800	52.1	311.5	+25.6			703	
Apr. 17	Centre		0.917	76.2	291.1	+10.4			397	
					(355.8)	(-5.3)	(88)	(478)	(1100)	
107 ⁵¹⁷	JB, B	154	0.806	285.0	33.7	+8.8	16	106	250 ^{nf}	
		155	0.491	251.3	10.4	-13.6	64	292		
			0.780	60.2	296.4	+19.2			202	
Apr. 18	Centre		0.907	73.3	279.2	+12.7			191	
					(342.0)	(-5.2)	(80)	(398)	(643)	
108 ⁴⁴⁴	JB, B	154	0.911	282.0	33.8	+8.7	13	76	615 ^{nf}	
		155	0.652	255.2	10.0	-13.5	38	252		
			0.936	72.3	262.9	+14.6			241	
Apr. 19	Centre				(329.8)	(-5.1)	(51)	(328)	(856)	
109 ⁵⁸¹	JB, B	154	0.990	279.2	35.3	+8.3	0	79	500 ^{nf}	
		155	0.819	257.6	9.6	-13.0	47	243	761 ^{sf}	
		156	0.946	75.1	245.7	+12.3	0	30	581 ^{np}	
Apr. 20	Centre				(314.7)	(-5.0)	(47)	(352)	(1842)	
110 ⁶⁹⁹	H, WR	155	0.942	257.4	10.7	-13.5	0	246	952 ^c	
		156	0.831	71.7	246.3	+12.3	0	51	245 ^c	
Apr. 21	Centre				(300.0)	(-4.9)	(0)	(297)	(1197)	
111 ⁶⁵⁹	H, WR	156	0.973	255.0	293.1	-13.4			459	
			0.705	67.1	245.8	+12.3	0	39	181 ^{sf}	
Apr. 22	Centre		0.925	72.5	222.0	+14.2			243	
					(287.3)	(-4.8)	(0)	(39)	(883)	

Group 153, April 4. One very small spot.

Group 153*, April 5-9. One very small spot.

Group 153†, April 10-14. Two very small spots.

Group 154, April 10-20. Two small spots on April 10. One spot, regular in shape, on April 13. Has two companions on April 15; but on April 18 only the chief spot remains.

Group 155, April 10-21. Two large spots very close together.

Group 156, April 20-22. One small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1875. 112°703 H. Apr. 23	H, WR	Centre	0·916 0·823	287·8 69·6	337·3 221·0 (273·4)	+14·3 +13·8 (-4·7)	(o)	(o)	109 207 (316)	1875. 123°072 Me. May 4	A, H	156* 157 Centre	0·708 0·440	265·1 300·1	181·5 159·1 (136·5)	-6·1 +9·3 (-3·7)	19 63 (82)	52 564 (616)	(o)
113°488 Apr. 24	JB, B	Centre	0·858	70·2	206·9 (263·1)	+14·3 (-4·7)	(o)	(o)	291 (291)	124°482 May 5	JB, B	156* 157 Centre	0·898 0·694	264·2 287·1	181·7 159·8 (117·8)	-6·8 +9·1 (-3·6)	0 89 (89)	26 590 (616)	(o)
114°481 Apr. 25	JB, B	156* Centre	0·913 0·923	299·7 94·8	310·6 182·6 (250·0)	+24·7 -6·1 (-4·6)	54 (54)	263 (263)	652 706f (1358)	125°504 May 6	B, B	157 Centre	0·841	283·1	160·1 (104·3)	+9·0 (-3·5)	89 (89)	397 (397)	(o)
115°515 Apr. 26	JB, B	156* 157 Centre	0·807 0·977	94·3 80·1	182·6 160·0 (236·3)	-6·1 +8·7 (-4·5)	39 0 (39)	184 552 (736)	(o)	126°772 H. May 7	H, WR	157 Centre	0·958 0·949	280·1 104·9	159·8 159·9 (87·5)	+8·7 -15·1 (-3·3)	76 (76)	351 (351)	1275nf 385 (1660)
116°497 Apr. 27	JB, B	156* 157 Centre	0·653 0·914	94·0 78·2	182·6 158·8 (223·4)	-5·9 +8·9 (-4·4)	49 100 (149)	223 823 (1046)	1368nf (1368)	128°460 May 9	B, B	Centre	0·914	105·7	359·4 (65·2)	-15·6 (-3·1)	(o)	(o)	454 (454)
117°548 Apr. 28	JB, B	156* 157 Centre	0·455 0·798	94·9 75·1	182·5 158·3 (209·5)	-6·0 +9·2 (-4·3)	28 127 (155)	178 773 (951)	918nf (918)	129°700 H. May 10	H, WR	Centre	0·744		(48·8)	(-3·0)	(o)	(o)	(272)
118°582 Apr. 29	JB, B	156* 157 Centre	0·239 0·640	99·1 69·4	182·2 158·5 (195·8)	-6·2 +9·6 (-4·2)	32 133 (165)	147 981 (1128)	(o)	130°649 H. May 11	H, WR	Centre	0·967 0·857	283·0 290·9	110·3 92·5 (36·3)	+11·8 +16·2 (-2·9)	(o)	(o)	321 246 (567)
119°499 Apr. 30	JB, B	156* 157 Centre	0·042 0·486	145·1 61·6	182·3 158·1 (183·7)	-6·1 +9·6 (-4·1)	0 74 (74)	38 773 (811)	(o)	May 12	No Spots or Faculæ.								
120°129 Me. May 1	A, H	156* 157 157* Centre	0·114 0·365 0·495 0·920	248·1 50·7 58·0 77·9	181·4 158·7 150·0 109·7 (175·3)	-6·4 +9·5 +11·6 +9·5 (-4·0)	15 103 17 (135)	89 554 212 (855)	426 (426)	132°718 H. May 13	H, WR	Centre	0·873	265·7	69·7 (9·0)	-5·1 (-2·7)	(o)	(o)	285 (285)
122°499 May 3	JB, B	156* 157 Centre	0·614 0·347	264·1 310·1	181·8 159·5 (144·0)	-6·6 +9·3 (-3·8)	19 99 (118)	79 691 (770)	(o)	133°575 May 14	B, B	Centre	0·944 0·924	265·4 70·7	68·2 292·2 (357·6)	-5·2 +16·8 (-2·5)	(o)	(o)	265 293 (558)
										134°598 May 15	B, B	Centre	0·820 0·863	284·5 63·8	37·7 288·2 (344·1)	+10·4 +21·1 (-2·4)	(o)	(o)	202 477 (679)
										136°477 May 17	JB, B	Centre	0·928 0·849 0·944	287·5 233·5 75·5	25·6 12·3 249·8 (319·2)	+15·3 -31·6 +12·9 (-2·2)	(o)	(o)	230 207 129 (566)

Group 156*, April 25-May 5. Two small spots very close together.

Group 157, April 26-May 7. One large spot, with several small ones following it.

Group 157*, May 1. A pair of spots following Group 157.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 137.766 H. May 18	H, WR		0.958 0.859	253.2 252.0	15.1 0.3	-16.7 -16.5			282 119 (401)		1875. 153.602 June 3	JB, B 160 Centre	0.918 0.553	283.8 109.7		158.4 60.8 (92.6)	+12.6 -10.8 (-0.2)	58 (58)	496 (496)	686 (686)	
138.077 Me. May 19	A, H		0.910 0.931	250.8 72.6	2.6 231.1	-18.3 +15.4			288 209 (497)		154.532 June 4	JB, B 160 Centre	0.949 0.380	284.7 119.3		151.0 60.7 (80.3)	+13.8 -10.7 (-0.1)	72 (72)	478 (478)	217 (217)	
139.077 Me. May 20	A, H		0.904	71.1	222.0	+16.2			259 (259)		155.634 June 5	JB, B 160 Centre	0.193	156.7		61.3 (65.7)	-10.1 (+0.1)	97 (97)	520 (520)	(0)	
140.533 May 21	JB, B		0.963	81.0	191.8	+8.2			226 (226)		158.532 June 8	JB, B 160 Centre	0.586	252.6		61.8 (27.4)	-9.7 (+0.4)	57 (57)	502 (502)	(0)	
141.667 H. May 22	H, WR	157†	0.828 0.875 0.984	78.5 96.0 81.6	195.6 189.9 171.4	+8.6 +4.4 +8.0	0	13	177f 121 244 (542)		160.564 June 10	JB, B 160 Centre	0.886	258.2		62.0 (0.5)	-10.1 (+0.1)	60 (60)	433 (433)	7018f (701)	
May 23		No Spots or Faculae.									161.560 June 11	JB, B 160 Centre	0.966	259.1		61.5 (347.3)	-10.4 (+0.8)	87 (87)	457 (457)	582c (582)	
143.535 May 24	JB, B	158 159 Centre	0.385 0.896	41.1 80.3	210.6 163.0 (225.8)	+15.5 +8.0 (-1.4)	0 0 (0)	46 35 (81)			June 12		No Spots or Faculae.								
145.610 May 26	JB, B	159 Centre	0.595	74.5	163.1 (198.4)	+8.2 (-1.2)	0 (0)	27 (27)			164.686 H. June 14	H, WR Centre	0.906 0.861 0.971	254.9 83.3 68.8		9.6 246.8 (305.9)	-13.1 +6.4 (+1.2)			112 186 351 (649)	
146.644 H. May 27	H, WR	159 Centre	0.403 0.922	66.9 82.6	162.7 117.9 (184.6)	+8.1 +6.5 (-1.0)	5 (5)	26 (26)			June 15		No Spots or Faculae.								
147.647 H. May 28	H, WR	159 Centre	0.217 0.803	41.5 79.3	163.1 118.8 (171.4)	+8.5 +8.1 (-0.9)	6 (6)	18 (18)			166.516 June 16	JB, B 161 Centre	0.566 0.843	80.9 103.8		247.6 225.4 (281.7)	+6.2 -10.9 (+1.4)	23 (23)	179 (179)	234 (234)	
150.603 H. May 31	H, WR		0.861 0.964	280.2 101.2	190.9 58.1 (132.2)	+8.5 -10.9 (-0.5)			186 232 (418)		167.457 June 17	JB, B 161 Centre	0.381	76.3		247.4 (269.2)	+6.6 (+1.5)	87 (87)	545 (545)	(0)	
151.542 June 1	JB, B	160 Centre	0.866	102.0	60.6 (119.9)	-10.5 (-0.4)	3 (3)	79 (79)			169.478 June 19	JB, B 161 Centre	0.116 0.904	318.2 81.7		246.8 178.1 (242.5)	+6.6 +8.2 (+1.7)	122 (122)	722 (722)	214 (214)	

Group 157†, May 22. A small spot.

Group 158, May 24. Two small spots.

Group 159, May 24-28. One small spot.

Group 160, June 1-11. Two spots. This group greatly increases in size on June 3 and following days

Group 161, June 16-24. Three or four small spots close together.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 170°644 June 20	JB, B	161 Centre	0·366	283·4	247·9 (227·0)	+ 6·6 (+ 1·9)	98 (98)	527 (527)	(o)		1875. 180°081 June 30	A, II Me.	164 163 163*	0·916 0·583 0·662	281·8 284·3 109·3	168·2 136·9 62·7	+ 12·0 + 10·6 - 10·4	25 16 0	72 130 11	545 318f (863)	
171·678 H. June 21	H, WR	161 161 162 162*	0·605 0·521 0·215 0·767	277·4 278·3 139·7 69·1	250·3 244·4 205·3 164·9	+ 6·1 + 6·0 - 7·4 + 17·2	24 34 0 0	170 201 18 22	773f (773)		182·426 July 2	JB, B	164 163	0·924 0·260	282·0 148·7	138·5 63·2	+ 12·3 - 9·6	18 21	139 102	265sp (265)	
172·497 June 22	JB, B	161 162 Centre	0·705 0·198	276·8 203·3	247·0 207·0	+ 6·2 - 8·4	72 31	440 206	(o)		183·602 H. July 3	WR, II	163 Centre	0·987 0·260	279·7 210·2	136·5 63·1	+ 10·2 - 9·6	15	93	409 (409)	
173·530 June 23	JB, B	161 162 Centre	0·854 0·334	275·4 239·5	247·3 205·6	+ 5·8 - 7·6	103 105	333 551	955c (955)		185·393 July 5	JB, B	163 Centre	0·556	247·4	62·9 (31·3)	- 9·2 (+ 3·5)	13 (13)	40 (40)	(o)	
174·483 June 24	JB, B	161 162 Centre	0·942 0·524	275·4 251·2	246·4 206·1	+ 5·8 - 7·7	7 184	157 775	490c (490)		186·429 July 6	JB, B	163 Centre	0·729	253·3	62·9 (18·0)	- 9·5 (+ 3·6)	9 (9)	38 (38)	(o)	
175·552 June 25	JB, B	162 Centre	0·704	257·4	205·7 (162·0)	- 7·0 (+ 2·4)	181 (181)	856 (856)	(o)		188·596 H. July 8	WR, II	164*	0·953 0·825	257·9 74·2	60·5 294·3	- 10·3 + 15·2	0 (349·4)	27 (27)	409 309c (718)	
176·519 June 26	JB, B	162 Centre	0·846	259·1	206·2 (149·4)	- 7·8 (+ 2·5)	123 (123)	826 (826)	(o)		189·595 H. July 9	WR, II	164*	0·686				28 (28)	159 (159)	(o)	
177·531 June 27	JB, B	162 163 Centre	0·941 0·961	261·1 102·9	205·3 63·1	- 7·4 - 11·6	106 28	611 170	717c 329p (1046)		190·554 July 10	JB, B	164*	0·522 0·947	66·3 80·5	293·9 252·1	+ 15·6 + 10·3	36 (32·5)	144 (144)	826 (826)	
178·611 H. June 28	H, WR	164 163 Centre	0·312 0·870	295·9 104·0	138·1 62·5	+ 10·5 - 10·7	5 20	28 163	402c (402)		192·585 H. July 12	WR, II	164* 164*	0·946 0·213 0·238	256·2 1·6 20·9	6·1 296·2 291·5	- 11·6 + 16·5 + 17·0	0 17	11 75	428 (428)	
179·501 June 29	M, M	164 163 Centre	0·482 0·750	285·4 107·2	137·8 63·1	+ 9·8 - 10·8	10 18	51 111	(o)		193·644 H. July 13	WR, H	164*	0·267 0·955	324·0 96·8	291·9 210·5	+ 16·7 - 5·2	6 (282·5)	69 (69)	668 (668)	
											194·640 H. July 14	WR, H	164*	0·428 0·897	300·7 100·1	291·9 206·8	+ 16·6 - 7·1	0 (269·4)	45 (45)	609 (609)	

Group 162, June 21-27. Single spot. Greatly increases in size, and breaks up into several spots on June 23.
 Group 162*, June 21. A small spot.
 Group 163, June 27-July 6. One spot at first, which breaks up into two on July 3.
 Group 163*, June 30. A small spot.
 Group 164, June 28-30. One small spot, regular in shape. It has broken up into several spots on July 3.
 Group 164*, July 8-14. Two spots.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measures.	No. of Group and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1875. 196 ^o 067 Me. July 16	A, H		0 ^o 965 0 ^o 905	282 ^o 6 83 ^o 8	325 ^o 8 185 ^o 7 (250 ^o 6)	+13 ^o 4 +7 ^o 5 (+4 ^o 6)	(o)	(o)	372 299 (671)	1875. 208 ^o 450 July 28	JB, B 166 Centre	0 ^o 963 0 ^o 669 0 ^o 917	254 ^o 7 83 ^o 0 104 ^o 5	159 ^o 0 44 ^o 7 22 ^o 2 (86 ^o 7)	-13 ^o 1 +8 ^o 8 -10 ^o 9 (+5 ^o 6)	32 (32)	171 (171)	152 184 (336)	
197 ^o 598 H. July 17	WR, H 164† 164† Centre		0 ^o 944 0 ^o 886 0 ^o 435 0 ^o 381 0 ^o 913 0 ^o 924	257 ^o 1 287 ^o 6 295 ^o 7 296 ^o 4 73 ^o 3 84 ^o 7	299 ^o 5 292 ^o 5 254 ^o 1 250 ^o 8 164 ^o 3 162 ^o 7 (230 ^o 3)	-10 ^o 6 +17 ^o 7 +15 ^o 1 +14 ^o 1 +17 ^o 2 +6 ^o 7 (+4 ^o 7)	o o o o	22 8 (30)	233 490 298 377 (1398)	209 ^o 472 July 29	JB, B 166 Centre	0 ^o 941 0 ^o 490	257 ^o 8 83 ^o 9	141 ^o 8 43 ^o 4 (73 ^o 2)	-9 ^o 5 +8 ^o 0 +5 ^o 7	31 (31)	209 (209)	184 (184)	
198 ^o 493 July 18	JB, B Centre		0 ^o 965	287 ^o 2	293 ^o 7 (218 ^o 4)	+17 ^o 8 (+4 ^o 8)	(o)	(o)	217 (217)	210 ^o 594 July 30	JB, B 166 Centre	0 ^o 220	77 ^o 2	45 ^o 9 (58 ^o 4)	+8 ^o 4 (+5 ^o 8)	26 (26)	167 (167)	(o)	
July 19	No Spots or Faculae.									211 ^o 509 July 31	JB, B 166 Centre	0 ^o 067	329 ^o 3	48 ^o 2 (46 ^o 3)	+9 ^o 1 (+5 ^o 9)	20 (20)	156 (156)	(o)	
200 ^o 660 H. July 20	WR, H Centre		0 ^o 888	282 ^o 4	252 ^o 5 (189 ^o 7)	+13 ^o 3 (+5 ^o 0)	(o)	(o)	583 (583)	213 ^o 472 Aug. 2	JB, B 166a 166b Centre	0 ^o 581 0 ^o 368 0 ^o 797	276 ^o 1 276 ^o 5 78 ^o 0	55 ^o 9 41 ^o 9 327 ^o 3 (20 ^o 3)	+8 ^o 4 +8 ^o 0 +13 ^o 1 (+6 ^o 0)	44 33 (77)	272 218 (490)	123 (123)	
202 ^o 645 H. July 22	WR, H Centre		0 ^o 975	84 ^o 8	85 ^o 9 (163 ^o 5)	+6 ^o 3 (+5 ^o 2)	(o)	(o)	1390 (1390)	214 ^o 501 Aug. 3	JB, B 166a 166b Centre	0 ^o 772 0 ^o 592	275 ^o 9 274 ^o 7	57 ^o 4 43 ^o 0 (6 ^o 7)	+8 ^o 4 +7 ^o 7 (+6 ^o 1)	36 29 (65)	124 145 (269)	(o)	
203 ^o 044 Me. July 23	A, H Centre		0 ^o 780	251 ^o 4	206 ^o 9 (158 ^o 2)	-11 ^o 0 (+5 ^o 2)	(o)	(o)	347 (347)	216 ^o 492 Aug. 5	JB, B 166a 166b Centre	0 ^o 971 0 ^o 902	277 ^o 2 276 ^o 4	57 ^o 0 45 ^o 0 (340 ^o 4)	+8 ^o 4 +8 ^o 4 (+6 ^o 2)	o 37 (37)	88 112 (200)	644nf (644)	
204 ^o 489 July 24	JB, B 165 Centre		0 ^o 948 0 ^o 572 0 ^o 960	257 ^o 5 58 ^o 7 104 ^o 4	208 ^o 9 107 ^o 5 67 ^o 3 (139 ^o 1)	-10 ^o 0 +21 ^o 7 -12 ^o 2 (+5 ^o 3)	o o (o)	12 (12)	309 223 (532)	Aug. 6	No Spots or Faculae.								
205 ^o 445 July 25	JB, B 165 Centre		0 ^o 887 0 ^o 437 0 ^o 900	277 ^o 4 47 ^o 3 102 ^o 5	189 ^o 3 106 ^o 3 63 ^o 9 (126 ^o 5)	+9 ^o 1 +22 ^o 2 -8 ^o 8 (+5 ^o 4)	o o (o)	22 (22)	327 206 (533)	Aug. 9	No Spots or Faculae.								
206 ^o 519 July 26	JB, B 166 Centre		0 ^o 929	83 ^o 7	43 ^o 8 (112 ^o 3)	+7 ^o 9 (+5 ^o 5)	19 (19)	172 (172)	83onf (830)	221 ^o 463 Aug. 10	JB, B Centre	0 ^o 822	283 ^o 5	330 ^o 2 (274 ^o 7)	+14 ^o 7 (+6 ^o 4)	(o)	(o)	163 (163)	
207 ^o 583 July 27	JB, B 166 Centre		0 ^o 801	84 ^o 3	44 ^o 8 (98 ^o 2)	+7 ^o 9 (+5 ^o 6)	o (o)	95 (95)	(o)	222 ^o 599 Aug. 11	JB, B Centre	0 ^o 915 0 ^o 976	286 ^o 7 84 ^o 2	326 ^o 5 181 ^o 9 (259 ^o 7)	+17 ^o 9 +7 ^o 1 (+6 ^o 5)	(o)	(o)	211 620 (831)	

Group 164†, July 17. A short stream.

Group 165, July 24-25. One small spot.

Group 166, July 26-August 5. Several small spots close together. The group becomes more and more scattered up to August 2, when it has completely divided into two parts.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 224 ^h 51 ^m 17 ^s Aug. 13	JB, B	Centre	0.917 0.833	283.7 84.5	301.4 177.6 (234.3)	+15.1 +8.2 (+6.6)	(o)	(o)	316 399 (715)		1875. 237 ^h 64 ^m 2 ^s H. Aug. 26	WR, H	167 168 Centre	0.045 0.227	316.1 88.3	62.6 47.6 (60.8)	+9.0 +7.3 (+7.1)	o 18 (18)	19 86 (105)	(o)	
Aug. 14		No Spots or Faculæ.									238 ^h 53 ^m 37 ^s Aug. 27	JB, B	167 168 Centre	0.242 0.024	279.0 99.9	62.9 47.7 (49.0)	+9.1 +6.9 (+7.1)	o 27 (27)	23 128 (151)	(o)	
227 ^h 42 ^m 5 ^s Aug. 16	JB, B	Centre	0.893	283.6	259.8 (196.0)	+15.1 (+6.7)	(o)	(o)	243 (243)		239 ^h 64 ^m 0 ^s H. Aug. 28	WR, H	167 168 Centre	0.472 0.236	275.3 272.0	62.7 48.1 (34.4)	+8.9 +7.5 (+7.2)	o 20 (20)	13 91 (104)	(o)	
Aug. 17 to Aug. 19		No Spots or Faculæ.									240 ^h 48 ^m 0 ^s Aug. 29	JB, B	168 Centre	0.410	271.8	47.6 (23.3)	+7.3 (+7.2)	33 (33)	128 (128)	(o)	
231 ^h 71 ^m 5 ^s H. Aug. 20	WR, H	167 Centre	0.971	82.0	62.3 (139.1)	+9.4 (+6.9)	o (o)	102 (102)	414 ^c (414)		241 ^h 43 ^m 8 ^s Aug. 30	JB, B	168 169 Centre	0.606 0.920	273.9 104.5	48.1 306.0 (10.7)	+8.1 -10.3 (+7.2)	23 o (23)	123 14 (137)	341 ^c (341)	
232 ^h 46 ^m 1 ^s Aug. 21	JB, B	167 168 Centre	0.919 0.987	83.7 84.2	62.1 48.3 (129.3)	+8.5 +6.9 (+7.0)	22 59 (81)	115 382 (497)	646 (646)		242 ^h 44 ^m 0 ^s Aug. 31	JB, B	168 Centre	0.766 0.838	274.3 104.5	47.7 302.6 (357.4)	+7.9 -8.0 (+7.2)	12 (12)	75 (75)	1071 ^{mp} 328 (1399)	
233 ^h 63 ^m 9 ^s Aug. 22	JB, B	167 168 Centre	0.896 0.783 0.919	276.5 85.0 86.1	177.8 62.0 46.7 (113.7)	+8.9 +8.2 +6.3 (+7.0)	26 50 (76)	82 300 (382)	327 1499 ⁿ (1826)		243 ^h 52 ^m 6 ^s Sept. 1	JB, B	Centre	0.884	98.2	282.0 (343.1)	-3.8 (+7.2)	(o)	(o)	967 (967)	
234 ^h 50 ^m 5 ^s Aug. 23	JB, B	167 168 Centre	0.944 0.641 0.818 0.962	277.3 85.3 86.6 103.3	173.6 62.2 47.1 30.2 (102.3)	+9.2 +8.4 +6.8 -10.7 (+7.0)	13 62 (75)	50 253 (303)	135 970 ^{mp} 256 (1361)		244 ^h 76 ^m 5 ^s H. Sept. 2	H, ST	Centre	0.959 0.943	278.3 258.4	40.9 35.5 (326.7)	+10.0 -8.4 (+7.2)	(o)	(o)	933 561 (1494)	
											Sept. 3		No Spots or Faculæ.								
											Sept. 4		No Spots or Faculæ.								
235 ^h 68 ^m 2 ^s H. Aug. 24	WR, H	167 168 Centre	0.410 0.637	83.5 86.9	62.4 47.0 (86.7)	+9.1 +7.5 (+7.1)	o 18 (18)	32 161 (193)	(o)		Sept. 6 to Sept. 8		No Spots or Faculæ.								
236 ^h 75 ^m 5 ^s H. Aug. 25	WR, H	167 168 Centre	0.174 0.423	78.9 87.7	62.6 47.4 (72.5)	+8.9 +7.4 (+7.1)	o 20 (20)	28 129 (157)	(o)		251 ^h 41 ^m 4 ^s Sept. 9	JB, B	170 Centre	0.913 0.895 0.566 0.900	259.7 286.8 135.9 82.8	303.3 303.1 214.6 174.2 (238.9)	-6.3 +18.3 -17.3 +9.7 (+7.3)	o 17 (o)	17 (17)	291 220 224 (735)	

Group 167, August 20-28. One spot.
 Group 168, August 21-31. One spot.
 Group 169, August 30. One small spot.
 Group 170, September 9-11. Two small spots.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).			
1875. 253.670 H. Sept. 11	H, ST	170 170 Centre	0.417 0.416	199.6 190.2	217.4 213.5 (209.1)	-15.9 -16.9 (+7.2)	0 0 (0)	24 9 (33)	(0)	1875. 270.722 H. Sept. 28	H, ST	173 173 Centre	0.494 0.554	119.5 116.5	318.4 314.0 (344.0)	-8.0 -8.4 (-6.8)	24 0 (24)	136 77 (213)	(0)		
Sept. 13	No Spots or Faculae.																				
256.490 Sept. 14	JB, B	171 Centre	0.965	76.6	96.0 (171.9)	+14.8 (+7.2)	38 (38)	173 (173)	621p (621)	Sept. 29		Centre			0.917 0.361 0.571 0.811	280.0 134.5 230.6 81.0	41.3 319.3 1.3 279.7 (334.2)	+11.9 -8.1 -15.2 +11.3 (+6.7)	25 0 (25)	157 28 (185)	131 53 (184)
257.478 Sept. 15	JB, B	171 172 Centre	0.891 0.866 0.294	246.9 76.5 93.0	217.5 98.3 141.7 (158.8)	-16.8 +15.2 +6.0 (+7.2)	5 0 (5)	76 11 (87)	134 3968 (530)	272.471 Sept. 30	JB, B	173 174 Centre	0.255 0.746	171.1 241.6	318.7 3.8 (321.0)	-7.8 -15.8 (+6.7)	32 0 (32)	120 14 (134)	(0)		
258.426 Sept. 16	JB, B	171 Centre	0.740	76.0	98.5 (146.3)	+15.1 (+7.2)	0 (0)	43 (43)	6418 (641)	273.065 Me. Oct. 1	A, H	173 Centre	0.265	198.8	318.1 (313.2)	-7.8 (+6.7)	0 (0)	77 (77)	(0)		
259.096 Me. Sept. 17	A, H	Centre	0.960	82.7	63.1 (137.5)	+9.0 (+7.1)	0 (0)	0 (0)	329 (329)	274.423 Oct. 2	JB, B	173 174 175 Centre	0.444 0.955 0.269	238.4 252.0 197.6	317.5 4.9 299.9 (295.2)	-7.3 -14.9 -8.2 (+6.6)	0 0 27 (27)	53 20 166 (239)	373w (373)		
260.679 H. Sept. 18	H, ST	Centre	0.866	80.3	56.2 (116.6)	+11.7 (+7.1)	0 (0)	0 (0)	688 (688)	276.715 H. Oct. 4	H, ST	175 175 Centre	0.838 0.620 0.589	254.8 247.8 245.6	319.7 300.3 297.7 (265.0)	-9.0 -8.2 -8.6 (+6.5)	13 6 (19)	116 27 (143)	292 232c (524)		
Sept. 21 to Sept. 23	No Spots or Faculae.																				
266.574 H. Sept. 24	H, ST	Centre	0.889 0.871	266.2 286.5	101.1 99.8 (38.8)	-0.2 +17.7 (+6.9)	0 (0)	0 (0)	297 336 (633)	277.566 Oct. 5	JB, B	175 176 177 Centre	0.754 0.749 0.376	254.9 285.2 287.4	300.7 302.1 275.2 (253.8)	-7.0 +15.6 +12.4 (+6.4)	27 0 0 (27)	85 16 27 (128)	166p 200p (366)		
267.593 H. Sept. 25	H, ST	Centre	0.944 0.948 0.972	283.9 104.2 266.5	96.9 316.0 101.7 (25.3)	+15.4 -11.1 -1.7 (+6.9)	0 (0)	0 (0)	265 350 657 (1272)	278.423 Oct. 6	JB, B		0.970 0.855 0.862 0.860 0.581	260.5 249.3 257.4 284.0 281.1	317.1 297.8 300.3 302.1 277.8 (242.5)	-7.5 -14.0 -7.4 +15.3 +11.6 (+6.4)	14 0 0 0 0 (14)	73 11 12 (96)	299 118 217c 328np (962)		
269.546 Sept. 27	JB, B	173 Centre	0.877 0.703 0.986	280.0 109.4 80.5	61.4 317.7 278.5 (359.6)	+12.0 -8.4 +10.4 (+6.8)	18 (18)	111 (111)	530 192 (722)												

Group 171, September 14-16. Three or four very small spots.

Group 172, September 15. Two very small spots.

Group 173, September 27-October 2. One spot surrounded by several very much smaller ones.

Group 174, September 29-October 2. One small spot. The photograph on October 1 is too dense for the group to be seen.

Group 175, October 2-7. Two spots.

Group 176, October 5-6. Two small spots close together.

Group 177, October 5-9. A scattered cluster of very small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1875. 279.439	JB, B		0.952	284.7	302.0	+15.9			251		1875. 298.415	JB, B	180	0.808	79.8	284.9	+11.0	52	319	
			0.940	257.7	297.4	-9.3			135		Oct. 26		Centre			(338.8)	(+4.8)	(52)	(319)	(0)
		175	0.951	259.8	299.6	-7.6	0	20	213 ^f											
Oct. 7		177	0.721	281.2	275.2	+12.4	34	122			299.112	A, II	180*	0.934	282.2	38.8	+13.1			388
		Centre			(229.1)	(+6.3)	(34)	(142)	(599)		Me.		180	0.584	287.2	4.4	+13.8	5	18	
280.705	H, ST	177	0.904	279.2	277.5	+11.2	0	58	481 ^c		Oct. 27		Centre			285.0	+10.4	62	414	510 ^f
Oct. 8		Centre			(212.3)	(+6.2)	(0)	(58)	(481)							(329.5)	(+4.7)	(67)	(432)	(898)
											300.066	A, H	180*	0.753	284.7	5.5	+14.1	9	40	132 ^p
281.415	JB, B	177	0.964	280.4	278.1	+11.6	0	20	154 ^c		Me.		180*	0.720	286.0	2.5	+14.7	0	6	
Oct. 9		178	0.237	243.6	215.2	0.0	0	12			Oct. 28		Centre			284.7	+10.7	58	335	
		Centre			(203.0)	(+6.2)	(0)	(32)	(154)							(317.0)	(+4.6)	(67)	(381)	(132)
282.457	JB, B	178	0.438	258.7	214.5	+0.6	6	32			301.042	A, II	180*	0.881	283.7	5.9	+14.2	0	33	489 ^c
Oct. 10		Centre			(189.2)	(+6.1)	(6)	(32)	(0)		Me.		180	0.342	69.3	285.1	+11.2	45	442	
											Oct. 29		Centre			(304.1)	(+4.5)	(45)	(475)	(489)
283.429			0.957	88.3	103.4	+3.4			424											
Oct. 11		Centre			(176.5)	(+6.0)	(0)	(0)	(424)		304.665	H, ST	180	0.490	286.3	284.9	+11.6	65	386	
											H.		Centre			80.9	190.0	+10.0		419
284.108	A, H		0.886	73.5	104.8	+17.4			315		Nov. 1					(256.3)	(+4.2)	(65)	(386)	(419)
Oct. 12		Centre	0.909	87.5	102.1	+4.8			714											
					(167.5)	(+6.0)	(0)	(0)	(1029)											
Oct. 13		No Spots or Faculæ.									305.386	JB, B	180	0.621	282.0	284.8	+10.7	83	305	(0)
											Nov. 2		Centre			(246.8)	(+4.2)	(83)	(305)	
Oct. 17		No Spots or Faculæ.									306.753	H, ST	180	0.827	280.6	284.5	+10.9	50	343	464 ^c
											H.					82.8	167.5	+8.2		531
290.213	A, H		0.965	276.4	162.1	+7.7			194		Nov. 3		Centre			104.2	156.0	-12.5		148
		178*	0.896	254.7	148.0	-11.1	0	19								(228.8)	(+3.9)	(50)	(343)	(1143)
Me.		178*	0.871	252.8	145.1	-12.0	0	20	292 ^c		Nov. 6		No Spots or Faculæ.							
			0.961	68.5	12.3	+22.2			368											
Oct. 18		Centre	0.969	81.3	10.8	+9.9			301											
					(87.0)	(+5.6)	(0)	(39)	(1155)		311.497	JB, B		0.879	267.8	227.5	-0.4			241
											Nov. 8		Centre			(166.3)	(+3.4)	(0)	(0)	(241)
293.402	JB, B		0.842	272.2	102.3	+4.8			74		Nov. 10		No Spots or Faculæ.							
Oct. 21		179	0.161	51.2	37.6	+11.2	0	22												
		Centre			(44.9)	(+5.5)	(0)	(22)	(74)											
297.476	JB, B	180	0.912	80.3	285.3	+10.8	90	505	895 ^f		Nov. 12		No Spots or Faculæ.							
Oct. 25		Centre			(351.2)	(+4.9)	(90)	(505)	(895)											

Group 178, October 9-10. Two very small spots. On October 10 one of the two spots has disappeared.

Group 178*, October 18. A short stream.

Group 179, October 21. A small spot.

Group 180, October 25-November 3. One large spot.

Group 180*, October 27-29. A regular spot, with a small companion on October 28.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1875. 316°026 Me. Nov. 13	A, H	Centre	0°889 0°799	278°9 250°7	169°1 157°1	+ 9°2 - 13°4	(106°5)	(+ 2°9)	(0)	(0)	(714)	528 186							
318°415	JB, B	181	0°960 0°924 0°902	250°3 287°5 112°8	146°8 142°0 13°6	- 18°1 + 17°1 - 19°2	0	9	166 200 ^{of} 219	Nov. 25	Centre	182 183* 184a 184b 185	0°895 0°266 0°219 0°174 0°310	263°2 333°0 226°9 203°1 56°0	4°1 308°3 310°4 305°1 286°1	- 5°4 + 15°0 - 7°2 - 7°7 + 11°3	29 0 30 10 15	149 21 186 53 40	160 ^{of}
Nov. 15	Centre				(75°1)	(+ 2°6)	(0)	(9)	(585)	329°082	A, H	182 184 184 183* 185	0°940 0°306 0°247 0°319 0°228	264°3 241°5 231°2 316°0 40°2	4°0 310°1 305°5 307°6 285°8	- 4°9 - 7°1 - 7°6 + 14°5 + 11°3	13 26 0 0 4	125 129 30 8 38	383 ^f
321°410	JB, B	182a 182b	0°604 0°685	104°9 105°9	359°8 354°0	- 7°1 - 9°1	34 15	136 61	542	Nov. 26	Centre	182 184 185	0°953 0°989 0°498 0°195	262°2 265°1 254°5 338°0	353°1 2°5 310°1 285°6	- 7°1 - 4°7 - 6°6 + 11°6	0 0 23 0	134 188 8	(383)
Nov. 18	Centre				(35°6)	(+ 2°3)	(49)	(197)	(542)	330°077	A, H	182 184 185	0°953 0°989 0°498 0°195	262°2 265°1 254°5 338°0	353°1 2°5 310°1 285°6	- 7°1 - 4°7 - 6°6 + 11°6	0 0 23 0	134 188 8	286
322°401	M, M	182a 182b 183	0°423 0°508 0°706	111°4 111°4 76°9	358°8 354°1 338°3	- 6°8 - 8°7 + 10°7	25 7 7	140 42 36	520 ^f	Nov. 27	Centre	182 184 185	0°953 0°989 0°498 0°195	262°2 265°1 254°5 338°0	353°1 2°5 310°1 285°6	- 7°1 - 4°7 - 6°6 + 11°6	0 0 23 0	134 188 8	(286)
Nov. 19	Centre				(22°5)	(+ 2°2)	(39)	(218)	(520)	332°096	A, H	184	0°876 0°832	287°4 262°1	315°3 310°7	+ 15°6 - 6°0	35	249	233
323°539	M, M	182a 182b 183 184 185	0°183 0°267 0°485 0°891 0°992	144°6 129°9 71°9 100°3 78°6	1°4 355°7 339°7 305°4 284°7	- 6°5 - 7°8 + 10°4 - 8°2 + 11°6	37 16 13 23 0	126 75 63 101 81	370 ^{of}	Nov. 29	Centre	184	0°876 0°832	287°4 262°1	315°3 310°7	+ 15°6 - 6°0	35	249	377 ^c
Nov. 20	Centre				(7°5)	(+ 2°0)	(89)	(446)	(0)	333°108	H, A	184	0°935	263°5	310°2	- 5°8	35	234	522 ^f
325°429	M, M	182a 182b 183 184 185	0°376 0°268 0°168 0°606 0°839	247°5 235°5 17°7 105°6 77°0	2°9 355°4 339°7 306°7 286°2	- 6°6 - 6°9 + 10°9 - 7°9 + 11°8	22 16 5 63 19	96 70 18 267 56	370 ^{of}	Dec. 8	Centre	184 185	0°884 0°912	44°4 78°3	84°1 71°5	+ 38°9 + 10°6	(0)	(0)	275
Nov. 22	Centre				(342°6)	(+ 1°8)	(125)	(507)	(370)	Dec. 10	No Spots or Faculae.								227
326°498	JB, B	182a 182b 183 184a 184b 185	0°585 0°478 0°265 0°349 0°442 0°686	256°0 251°4 303°9 117°8 112°7 74°8	3°2 355°5 341°4 310°5 304°3 286°2	- 6°7 - 7°3 + 10°1 - 7°8 - 8°3 + 11°5	28 6 0 44 19 11	97 39 10 181 88 62	(0)	Dec. 14	Centre	186 187	0°314 0°702	341°1 97°5	58°4 8°3	+ 16°2 - 6°0	0 0	11 10	(502)
Nov. 23	Centre				(328°5)	(+ 1°7)	(108)	(477)	(0)	348°074	H, A	189	0°943 0°987	88°4 102°9	333°9 323°7	- 1°2 - 12°9	39	345	155
										Dec. 15	Centre	189	0°943 0°987	88°4 102°9	333°9 323°7	- 1°2 - 12°9	39	345	271 ^c

Group 181, November 15. One small spot.

Group 182, November 18-27. A stream of spots.

Group 183, November 19-23. Cluster of two or three small spots.

Group 183*, November 25-26. Four very small spots.

Group 184, November 20-30. Two large spots, with several very small ones between them. A somewhat scattered group. The group breaks up into two on November 23.

Group 185, November 20-27. Single spot.

Group 186, December 14. One small spot.

Group 187, December 14. One small spot.

Group 188, December 17-23. Group of three or four spots ranged in a line.

Group 189, December 15-24. One large spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1875. 349°071 Me. Dec. 16	H, A	189	0°931	103°1	323°0	— 12°7	41	388	542 ^f		1875. 354°081 Me. Dec. 21	H, A	188 189	0°575 0°167 0°927	262°2 163°8 101°2	359°8 322°3 257°3 (325°0)	— 6°0 — 11°1 — 11°1 (— 1°9)	0 25 (25)	23 174 (197)	306 (306)	
350°497 Dec. 17	JB, B	188 189	0°278 0°774	111°5 103°7	357°3 322°4 (12°3)	— 7°1 — 11°4 (— 1°4)	22 54 (76)	70 366 (436)	274 ^f (274)		355°063 Me. Dec. 22	A, H	188 189	0°719 0°244	263°4 230°9	357°8 323°2 (312°1)	— 6°1 — 10°8 (— 2°0)	0 29 (29)	12 154 (166)	(0)	
351°026 Me. Dec. 18	H, A	188 189	0°937 0°147 0°691 0°804 0°946	284°9 129°2 106°3 104°1 79°3	73°7 358°9 322°8 313°2 294°6 (5°4)	+ 13°4 — 6°8 — 12°3 + 10°3 — 10°6 (— 1°5)	16 36 (52)	105 322 (427)	382 297 ^c 123 301 (1103)		356°550 Dec. 23	M, M	188 189	0°915 0°512	264°0 253°5	358°6 322°3 (292°5)	— 6°3 — 10°2 (— 2°2)	0 30 (30)	27 161 (188)	184 ^c (184)	
353°108 Me. Dec. 20	H, A	188 189	0°370 0°303	257°2 123°7	359°0 323°0 (337°8)	— 6°3 — 11°3 (— 1°7)	0 16 (16)	71 178 (249)	(0)		357°540 Dec. 24	JB, B	189	0°984 0°706	263°3 257°2	359°2 323°7 (279°5)	— 7°1 — 10°6 (— 2°3)	18 (18)	84 (84)	155 (155)	
											363°087 Me. Dec. 30	A, H	189*	0°856	262°7	265°2 (206°5)	— 7°7 (— 2°9)	3 (3)	33 (33)	202 ^c (202)	

Group 189*, December 30. A small spot.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. Jan. 1		No	Spots	or	°	°				1876. 21 ⁴⁷ 2	JB, B	191	0 ⁹ 45	284 ⁴	327 ⁵	+11 ⁷	6	291	
4 ⁴⁸ 7	JB, B	190	0 ⁶ 49	93 ⁶	81 ⁶	—5 ¹	0	16		192		192	0 ³ 37	109 ⁹	239 ⁷	—11 ⁷	53	266	
Jan. 5	Centre				(122 ²)	(—3 ⁷)	(0)	(16)	(0)	193		193	0 ⁵ 36	104 ⁴	226 ⁶	—12 ²	0	12	
										194		194	0 ² 71	229 ⁹	270 ⁹	—15 ³	0	13	
										Jan. 22	Centre				(258 ⁵)	(—5 ⁴)	(59)	(582)	(0)
10 ⁰⁷ 2	A, H	190*	0 ⁹ 72	284 ⁷	123 ⁴	+13 ²		250		22 ⁵² 1	JB, B	192	0 ¹ 44	143 ⁷	239 ⁷	—12 ⁰	45	252	
Me.		190*	0 ³ 20	321 ⁰	60 ⁴	+10 ²	3	20		193		193	0 ³ 27	113 ⁷	226 ⁹	—12 ⁷	0	13	
Jan. 11	Centre		0 ² 87	330 ¹	56 ⁹	+9 ⁸	0	11		194		194	0 ⁵ 57	251 ⁷	277 ⁷	—14 ⁶	13	132	
			0 ⁹ 74	76 ⁵	333 ²	+12 ¹	(3)	(31)	(543)	Jan. 23	Centre				(244 ⁷)	(—5 ⁵)	(58)	(397)	(0)
11 ⁰⁵ 2	A, H	190*	0 ⁴ 93	300 ⁶	61 ²	+10 ⁵	0	19		23 ⁴⁶ 6	B, B	192	0 ¹ 71	227 ⁴	239 ⁶	—12 ¹	48	244	
Me.		190*	0 ⁴ 46	303 ⁷	57 ⁷	+10 ²	0	5		194		194	0 ⁷ 03	253 ⁹	276 ⁵	—15 ²	78	320	
Jan. 12	Centre		0 ⁹ 24	74 ⁰	330 ³	—12 ⁹	(0)	(24)	(500)	Jan. 24	Centre				(232 ²)	(—5 ⁶)	(126)	(564)	(0)
					(35 ⁷)	(—4 ⁴)				24 ⁵¹ 1	JB, B		0 ⁸ 74	289 ⁵	276 ³	—14 ⁰			145
12 ⁰⁹ 1	A, H		0 ⁸ 72	70 ²	324 ²	+14 ⁸		237		192		192	0 ³ 77	250 ⁸	239 ⁷	—12 ³	46	247	
Me.			0 ⁸ 75	100 ²	318 ⁵	—11 ¹		273		194		194	0 ⁸ 56	255 ⁷	277 ⁵	—15 ¹	71	335	860 ^f
Jan. 13	Centre				(22 ¹)	(—4 ⁵)	(0)	(0)	(510)	Jan. 25	Centre				(218 ⁵)	(—5 ⁶)	(117)	(582)	(1005)
										25 ⁶⁸ 8	H, ST	194	0 ⁹ 34	255 ⁶	272 ⁶	—15 ⁵	0	118	
17 ⁵² 6	JB, B	191	0 ⁴ 36	309 ²	330 ⁵	+11 ²	6	26		192		192	0 ⁵ 97	256 ⁹	239 ⁴	—12 ⁴	0	135	
Jan. 18	Centre		0 ⁹ 45	99 ⁶	239 ²	—10 ⁷	49	266	388 ^{sf}	Jan. 26	Centre				(203 ⁰)	(—5 ⁷)	(0)	(253)	(0)
					(310 ⁵)	(—5 ⁰)	(55)	(292)	(388)	26 ⁴⁹ 6	JB, B	192	0 ⁷ 35	257 ⁰	239 ⁶	—13 ⁴	20	110	
18 ⁵⁰ 3	B, B	191	0 ⁵ 91	298 ⁸	329 ⁵	+12 ²	42	162		194		194	0 ⁹ 80	253 ⁸	271 ⁸	—17 ⁰	0	96	
Jan. 19	Centre		0 ⁸ 57	99 ⁹	238 ⁵	—11 ¹	105	658	428 ^{sf}	Jan. 27	Centre				(192 ⁴)	(—5 ⁸)	(20)	(206)	(0)
					(297 ⁶)	(—5 ¹)	(147)	(820)	(428)	27 ⁰⁹ 9	A, H	192	0 ⁸ 15	258 ⁸	239 ³	—12 ⁵	9	52	
19 ⁷¹ 1	ST, H	191	0 ⁷ 83	289 ³	329 ⁵	+11 ⁶	0	29		Jan. 28	Centre				(184 ⁵)	(—5 ⁸)	(9)	(52)	(0)
H.		191	0 ⁷ 52	292 ⁵	327 ⁰	+13 ¹	0	124		28 ⁴⁴ 5	JB, B	192	0 ⁹ 54	257 ³	239 ⁸	—13 ⁹	0	68	617 ^f
Jan. 20	Centre		0 ⁶ 72	102 ¹	239 ⁷	—12 ⁰	67	352		195		195	0 ⁹ 80	96 ⁷	87 ⁹	—7 ⁷	0	62	
			0 ⁸ 28	103 ³	225 ⁸	—13 ⁹	0	138	(0)	Jan. 29	Centre				(166 ⁷)	(—5 ⁹)	(0)	(130)	(617)
					(281 ⁷)	(—5 ²)	(67)	(643)		30 ⁴⁵ 2	JB, B	195	0 ⁷ 86	95 ²	88 ⁴	—7 ⁹	10	35	279 ^f
20 ⁷² 3	H, ST	191	0 ⁸ 75	287 ⁹	326 ⁷	+12 ⁸	0	111	384 ^c	Jan. 31	Centre				(140 ³)	(—6 ¹)	(10)	(35)	(279)
H.		194	0 ¹ 91	220 ³	275 ⁶	—13 ⁶	0	40		32 ⁵¹ 4	B, B	195	0 ⁴ 21	95 ⁷	88 ²	—8 ⁰	5	25	
Jan. 21	Centre		0 ¹ 64	196 ⁹	271 ¹	—14 ³	5	19	194 ^c	Feb. 2	Centre				(113 ³)	(—6 ²)	(5)	(25)	(0)
			0 ⁴ 85	105 ⁰	239 ⁸	—11 ⁹	47	301											
			0 ⁶ 79	103 ⁹	225 ⁸	—13 ³	0	45											
					(268 ³)	(—5 ³)	(52)	(516)	(578)										

Group 190, January 5. Scattered group of very faint small spots.

Group 190*, January 11–12. A short stream.

Group 191, January 18–22. Scattered group, but with two principal spots.

Group 192, January 18–29. Single large spot, but several smaller spots are seen on January 19.

Group 193, January 20–23. Scattered group of small spots.

Group 194, January 21–27. Scattered group of small spots. A change of shape is seen on January 24.

Group 195, January 29–February 4. Single spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 34'457 Feb. 4	JB, B	195 Centre	0'040	197'8	88'3 (87'6)	- 8'5 (- 6'3)	1 (1)	6 (6)	0 (0)		1876. 51'689 H. Feb. 21	II, ST	196 Centre	0'906	258'8	286'2 (220'6)	- 13'1 (- 7'1)	26 (26)	401 (401)	332 ^c (332)
38'718 H. Feb. 8	H, ST	Centre	0'903	69'0	330'6 (31'5)	+ 15'7 (- 6'6)	0 (0)	0 (0)	262 (262)		52'446 Feb. 22	JB, B	196 Centre	0'962	257'1	285'7 (210'7)	- 14'3 (- 7'1)	74 (74)	334 (334)	969 ^{sf} (969)
40'445 Feb. 10	JB, B	196 Centre	0'991	100'8	285'8 (8'7)	- 11'6 (- 6'7)	14 (14)	377 (377)	0 (0)		Feb. 23		No Spots or Faculæ.							
42'679 H. Feb. 12	II, ST	196 Centre	0'808	101'6	285'1 (339'3)	- 13'4 (- 6'8)	104 (104)	647 (647)	0 (0)		54'453 Feb. 24	JB, B	Centre	0'836 0'955	258'7 74'3	241'4 114'1 (184'4)	- 13'4 + 12'6 (- 7'2)	0 (0)	0 (0)	137 102 (239)
43'559 Feb. 13	JB, B	196 Centre		No Wires.	(327'7)	(- 6'8)	152 (152)	695 (695)	0 (0)		Feb. 25		No Spots or Faculæ.							
44'564 Feb. 14	JB, B	196 Centre	0'915 0'494 0'959	283'8 104'2 99'5	18'8 285'2 240'3 (314'4)	+ 9'6 - 12'9 - 11'0 (- 6'9)	149 (149)	695 (695)	97 291 (388)		56'425 Feb. 26	JB, B	197 Centre	0'979 0'959 0'702 0'963	284'3 259'2 67'8 92'3	234'3 232'7 117'2 83'8 (158'3)	+ 12'3 - 12'3 + 9'9 - 4'3 (- 7'2)	17 (17)	97 (97)	137 113 801 (1051)
45'083 Me. Feb. 15	A, II	196 Centre	0'385 0'910	107'4 97'7	285'5 241'6 (307'6)	- 13'0 - 9'9 (- 6'9)	97 (97)	642 (642)	225 (225)		58'558 Feb. 28	JB, B	197 Centre	0'869 0'361 0'794	285'7 38'5 91'7	187'7 117'1 77'0 (130'2)	+ 9'8 + 9'3 - 5'7 (- 7'2)	17 (17)	65 (65)	59 253 (312)
46'674 H. Feb. 16	II, ST	196 Centre	0'108				107 (107)	711 (711)	0 (0)		59'593 Feb. 29	JB, B	197 Centre	0'289	2'1	115'9 (116'5)	+ 9'5 (- 7'2)	9 (9)	80 (80)	0 (0)
47'108 Me. Feb. 17	A, II	196 Centre	0'138	216'8	285'9 (281'0)	- 13'3 (- 7'0)	117 (117)	701 (701)	0 (0)		60'074 Mar. 1	A, II	197 198 Centre	0'308 0'501	336'7 88'7	117'2 80'0 (110'1)	+ 9'3 - 5'6 (- 7'2)	9 15 (24)	128 72 (200)	0 (0)
48'414 Feb. 18	JB, B	196 Centre	0'958 0'397	284'7 251'4	334'8 286'4 (263'8)	+ 11'8 - 13'7 (- 7'0)	106 (106)	516 (516)	113 (113)		61'595 Mar. 2	JB, B	198 Centre	0'155	76'9	81'5 (90'1)	- 5'2 (- 7'3)	2 (2)	16 (16)	0 (0)
49'532 Feb. 19	JB, B	196 Centre	0'609	256'5	286'5 (249'1)	- 13'8 (- 7'1)	113 (113)	541 (541)	0 (0)		63'415 Mar. 4	JB, B	Centre	0'829	285'5	119'8 (66'2)	+ 8'6 (- 7'3)	0 (0)	0 (0)	244 (244)

Group 196, February 10-22. Single large spot.

Group 197, February 26-March 1. Somewhat scattered group of very small spots.

Group 198, March 1-2. Single small spot.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 65.411	JB, B	198*	0.985 0.666 0.934	279.3 289.3 73.2	118.3 79.0 333.8	+ 7.8 + 7.1 + 12.9	16	39	225	1876. 75.448	JB, B	199 200 201	0.302 0.586 0.789	251.0 50.4 91.6	284.5 239.8 215.4	- 12.4 + 15.6 - 5.7	2 52 8	17 185 43	(0)
Mar. 6		Centre			(39.9)	(-7.3)	(16)	(39)	(558)	Mar. 16		Centre			(267.6)	(-7.1)	(62)	(245)	(0)
66.410	JB, B	198*	0.865 0.820 0.842	265.5 284.2 69.2	87.0 79.8 333.0	- 7.5 + 7.2 + 13.2	7	26	765	76.474	JB, B	199 200 201 202	0.512 0.463 0.635 0.818	257.3 35.8 91.4 101.2	284.7 237.8 214.6 198.8	- 12.5 + 15.2 - 6.3 - 13.2	0 20 57 1	13 154 220 18	(0)
Mar. 7		Centre			(26.7)	(-7.2)	(7)	(26)	(966)	Mar. 17		Centre			(254.1)	(-7.1)	(78)	(405)	(0)
67.503	JB, B		0.937 0.925 0.984	264.8 279.9 100.3	82.2 78.5 291.7	- 7.3 + 6.3 + 11.5			365 189 31	77.511	JB, B	199 200 201 202 203	0.695 0.377 0.429 0.630 0.926	258.8 357.7 89.5 102.2 96.8	284.6 241.3 215.0 201.4 172.1	- 12.8 + 15.0 - 6.1 - 13.1 - 8.9	0 16 43 0 3	9 56 132 10 121	(0)
Mar. 8		Centre			(12.3)	(-7.2)	(0)	(0)	(585)	Mar. 18		Centre			(240.4)	(-7.0)	(62)	(328)	(0)
68.425	JB, B	199	0.984 0.965	265.3 99.4	80.2 284.7	- 5.8 + 10.9	15	100	244 560 ^{sp}	78.688	JB, B	200 201 203	0.446 0.170 0.792	324.6 89.2 97.5	240.3 215.1 172.2	+ 14.5 - 6.7 - 10.2	2 41 48	57 122 229	(0)
Mar. 9		Centre			(0.2)	(-7.2)	(15)	(100)	(804)	Mar. 19		Centre			(224.9)	(-7.0)	(91)	(408)	(270 ^{sf})
69.545	JB, B	199	0.872 0.977	99.1 85.1	284.2 268.5	- 11.4 + 3.2	18	86	252 ^{sp} 171	79.485	JB, B	200 201 203 204	0.545 0.103 0.642 0.952	307.4 276.1 95.7 72.9	240.7 220.2 174.2 145.0	+ 13.0 - 6.3 - 9.0 + 13.9	5 16 40 64	50 48 137 275	(0)
Mar. 10		Centre			(345.4)	(-7.2)	(18)	(86)	(423)	Mar. 20		Centre			(214.4)	(-7.0)	(125)	(510)	(0)
70.478	JB, B	199	0.744 0.908	99.0 82.4	284.7 269.0	- 11.5 + 3.8	14	66	270 ^{sf} 171	80.117	A, H		0.965	254.8	282.0	- 16.5			328
Mar. 11		Centre			(333.1)	(-7.2)	(14)	(66)	(441)	Me.		200 201 203 204	0.643 0.240 0.471 0.569	302.4 272.4 93.8 100.3	240.1 219.7 177.9 171.4	+ 14.4 - 6.2 - 7.9 - 11.6	3 5 9 5	30 28 52 38	
72.633	JB, B	199 200	0.349 0.921 0.926	105.1 70.2 99.3	284.7 241.2 236.3	- 11.9 + 15.1 - 11.3	18 45	58 215	520 ^{sf} 79	Mar. 21		Centre			(206.1)	(-6.9)	(59)	(440)	(1251)
Mar. 13		Centre			(304.7)	(-7.2)	(63)	(273)	(599)	81.534	JB, B		0.822	294.5	238.1	+ 15.6			392
73.560	JB, B	199 200 201	0.157 0.827 0.960	121.7 64.9 93.2	284.7 241.4 218.5	- 11.8 + 16.1 - 5.0	17 49	57 176	524 ^{sf} 138	Mar. 22		Centre			(187.6)	(-6.9)	(182)	(625)	(919)
Mar. 14		Centre			(292.5)	(-7.1)	(66)	(233)	(662)	201 203 204 205			0.540 0.216 0.661 0.870	268.9 95.3 57.9 76.9	220.1 174.9 152.1 128.8	- 6.4 - 7.9 + 14.9 + 7.8	5 12 157 8	16 63 522 24	
74.565	JB, B	199 200 201	0.125 0.696 0.903	234.4 59.3 93.5	285.1 241.0 214.5	- 11.2 + 15.2 - 6.2	10 40 0	37 123 8	756 ^{sf}	Mar. 22		Centre			(187.6)	(-6.9)	(182)	(625)	(919)
Mar. 15		Centre			(279.2)	(-7.1)	(50)	(168)	(756)										

Group 198*, March 6-7. A few very small spots not far apart, some of which disappear on March 7.

Group 199, March 9-18. Single spot.

Group 200, March 13-21. Scattered group. A great change is seen on March 17.

Group 201, March 15-24. Small group, principally consisting of one spot, the smaller spots disappearing on March 20.

Group 202, March 17-18. Single spot.

Group 203, March 18-23. Scattered group.

Group 204, March 20-30. Scattered group, consisting principally of two large spots.

Group 205, March 22-25. Single small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ. Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 82°52	H, ST		0°914	290°0	235°2	+15°1			1048	1876. 90°496	JB, B		0°959	287°0	139°9	+14°3			224
		201	0°732	267°2	219°8	— 6°7	0	22		Mar. 31	Centre				(69°2)	(— 6°5)	(0)	(0)	(224)
		203	0°090	272°3	177°8	— 6°6	0	19											
		204	0°426	27°3	160°9	+15°5	14	121											
	H.	204	0°431	36°7	157°3	+13°6	11	23		92°456	JB, B		0°811	266°3	97°7	— 6°7			242
		204	0°469	34°6	156°6	+16°1	0	7		Apr. 2	Centre				(43°3)	(— 6°3)	(0)	(0)	(242)
		204	0°503	39°9	153°0	+16°2	7	66											
		204	0°561	53°6	145°1	+13°4	19	198											
		205	0°714	72°4	129°4	+7°5	1	27		93°435	JB, B		0°910	264°8	96°1	— 7°3			168
Mar. 23	Centre		0°978	95°3	94°3	— 6°6			215	Apr. 3	Centre				(30°4)	(— 6°3)	(0)	(0)	(168)
					(172°6)	(— 6°8)	(52)	(483)	(1263)										
83°456	JB, B		0°966	286°8	234°4	+14°2			832	94°412	JB, B	206	0°854	102°7	318°5	— 14°0	0	4	71 ^{np}
		201	0°849	265°9	220°4	— 7°0	0	14	196 ^{nf}	Apr. 4	Centre				(17°5)	(— 6°2)	(0)	(4)	(71)
		204	0°393	20°4	153°9	+14°8	89	469											
		205	0°583	65°9	129°6	+8°0	8	29		Apr. 5	No Spots or Faculæ.								
Mar. 24	Centre		0°928	94°6	93°6	— 6°8			264										
					(162°0)	(— 6°8)	(97)	(512)	(1292)										
84°414	JB, B	201	0°910	265°8	215°1	— 6°6			284	96°676	ST, H	206*	0°985	108°8	266°3	— 19°5	0	99	264
		204	0°378	348°3	153°9	+14°9	80	442		H.			0°916	72°6	283°9	+13°3			275
		205	0°414	52°1	130°2	+8°3	8	17		Apr. 6	Centre		0°919	105°3	280°3	— 16°5			539
			0°855	94°2	90°4	— 7°1			289						(347°6)	(— 6°1)	(0)	(99)	
Mar. 25	Centre				(149°4)	(— 6°8)	(88)	(459)	(573)	97°406	JB, B		0°839	68°8	284°3	+14°0			90
										Apr. 7	Centre				(338°0)	(— 6°0)	(0)	(0)	(90)
86°087	A, H	204	0°637	303°6	160°5	+15°0	23	252		98°527	JB, B	207	0°650	60°2	287°8	+14°0	0	19	
Me.		204	0°553	311°2	152°7	+15°3	0	8				208	0°941	73°8	255°4	+12°9			190
Mar. 27	Centre		0°455	318°7	145°2	+13°6	10	90	(0)	Apr. 8	Centre				(323°2)	(— 5°9)	(0)	(19)	(190)
					(127°3)	(— 6°7)	(33)	(350)											
87°673	ST, H		0°909	262°8	172°2	— 9°3			1101	99°555	M, M	207	0°485	46°5	288°5	+13°9	0	9	
		204	0°848	292°4	160°5	+15°0	0	214	382 ^c			208	0°795	69°7	260°1	+12°2	0	7	
Mar. 28	Centre		0°689	297°7	145°1	+13°5	6	52					0°945	70°3	241°8	+16°4			484
					(106°4)	(— 6°6)	(6)	(266)	(1483)	Apr. 9	Centre				(309°6)	(— 5°9)	(0)	(16)	(484)
88°589	JB, B		0°964	258°2	169°8	— 13°1			275	100°667	ST, H	208	0°628	63°5	260°0	+11°5	0	43	
		204	0°936	289°0	160°5	+15°1	71	257	311 ^{nf}	H.			0°885	70°8	235°6	+14°0			761
Mar. 29	Centre		0°816	291°9	145°3	+13°6	2	18		Apr. 10	Centre				(294°9)	(— 5°8)	(0)	(43)	(761)
					(94°3)	(— 6°6)	(73)	(275)	(586)										
89°466	JB, B	204	0°983	286°4	159°6	+14°8	39	189	378 ^{nf}	101°453	JB, B	208	0°517	56°6	258°5	+11°3	0	30	
		205*	0°906	287°8	144°9	+13°0	0	14					0°778	63°7	238°2	+16°3			390
Mar. 30	Centre				(82°7)	(— 6°5)	(39)	(203)	(378)	Apr. 11	Centre		0°914	97°9	218°2	— 9°4			123
															(284°5)	(— 5°7)	(0)	(30)	(513)

Group 205*, March 29–30. A small spot following Group 204.

Group 206, April 4. Very small single spot.

Group 206*, April 6. A group only seen close to the west limb.

Group 207, April 8–9. Very small single spot.

Group 208, April 9–13. Group of small spots.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 102.682 H. Apr. 12	ST, H	208	0.336	27.3	259.3	+11.7	6	65		1876. Apr. 22		No Spots or Faculae.							
		Centre			(268.3)	(-5.7)	(6)	(65)	(0)	113.597 Apr. 23	JB, B	Centre	0.823	257.2	179.3 (124.1)	-13.2 (-4.7)	(0)	(0)	233 (233)
103.051 Me. Apr. 13	H, A	208†	0.212	311.9	272.4	+2.6	6	26		114.404 Apr. 24	JB, B	Centre	0.882	256.4	175.3 (113.5)	-14.2 (-4.6)	(0)	(0)	305 (305)
		208	0.299	12.4	259.7	+11.3	0	15											
		Centre			(263.4)	(-5.6)	(6)	(41)	(0)	115.564 Apr. 25	JB, B	Centre	0.908	295.0	159.3 (98.1)	+20.4 (-4.5)	(0)	(0)	103 328 (431)
104.611 Apr. 14	JB, B	208*	0.780	292.3	290.6	+13.6			90										
			0.361	94.0	221.7	-6.5	12	46											
		Centre	0.925	101.8	174.8	-13.0			628 (718)										
					(242.8)	(-5.5)	(12)	(46)											
105.508 Apr. 15	JB, B	208*	0.867	289.2	287.7	+13.7			115	116.032 Me. Apr. 26	H, A		0.982	293.8	168.0 (91.9)	+22.4 (-4.4)	(0)	(0)	623 (623)
			0.173	94.7	221.1	-6.1	7	24											
			0.856	101.7	171.9	-12.8			377 160										
		Centre	0.965	72.2	158.7	+15.6			(652)	Apr. 27 to Apr. 29		No Spots or Faculae.							
					(231.0)	(-5.4)	(7)	(24)											
106.537 Apr. 16	JB, B	208*	0.953	285.8	287.7	+13.3			122 168	121.420 May 1	JB, B	Centre	0.874	92.8	319.8 (20.7)	-4.3 (-3.9)	(0)	(0)	285 (285)
			0.831	276.8	272.8	+2.7	0	8											
		Centre	0.920	68.2	154.0	+17.7			134 (424)										
					(217.4)	(-5.3)	(0)	(8)											
107.662 H. Apr. 17	ST, H	208†	0.946	275.3	272.9	+3.3	0	59	396	122.527 May 2	JB, B	Centre	0.947	74.0	296.7 (6.1)	+13.8 (-3.8)	(0)	(0)	80 (80)
		Centre	0.202	80.5	191.0	-3.2	0		(396)										
					(202.5)	(-5.2)	(0)			123.514 May 3	JB, B	Centre	0.867	72.2	295.2 (353.1)	+13.4 (-3.7)	0 (0)	0 (0)	218 (218)
108.558 Apr. 18	JB, B	208†	0.045	327.5	192.1	-3.1	0	19											
		Centre			(190.7)	(-5.1)	(0)	(19)	(0)	124.532 May 4	JB, B	Centre	0.807	72.5	288.0 (339.6)	+11.7 (-3.6)	(0)	(0)	462 (462)
110.462 Apr. 20	JB, B		0.946	288.9	234.0	+16.1			173 166 168	May 5		No Spots or Faculae.							
			0.839	263.7	222.8	-8.0				126.424 May 6	JB, B	Centre	0.964	103.4	240.1 (314.6)	-13.8 (-3.4)	(0)	(0)	353 (353)
		Centre	0.867	93.8	105.3	-5.8			(507)										
					(165.6)	(-5.0)	(0)	(0)											
111.042 Me. Apr. 21	H, A		0.867	264.0	218.1	-7.7			357	127.589 May 7	JB, B	209 Centre	0.839	104.1	242.6 (299.2)	-13.6 (-3.3)	67 (67)	229 (229)	318 ^{8f} (318)
		Centre			(157.9)	(-4.9)	(0)	(0)	(357)										

Group 208*, April 14-16. Group consisting mainly of one small spot.

Group 208†, April 13. A short stream of small spots.

Group 208‡, April 17-18. A small faint spot.

Group 209, May 7-15. Fairly large spot, with a small one at a little distance, the latter almost disappearing on May 10.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 128°468 May 8	JB, B	209 Centre	0°708	105°7	243°3 (287°6)	-13°3 (-3°2)	50 (50)	176 (176)	280 ^{8f} (280)	1876. May 18 to May 19	}	No Spots or Faculæ.	0	0	0	0	0	226 (226)	
129°483 May 9	JB, B	209 Centre	0°539	111°1	243°1 (274°2)	-13°7 (-3°0)	34 (34)	158 (158)	(0)	140°596 H. May 20									ST, H	Centre	0°889	263°1	189°7 (127°2)	-7°0 (-1°8)	0 (0)	0 (0)
130°463 May 10	JB, B	209 Centre	0°885 0°344 0°960 0°987	263°0 124°4 96°7 76°7	323°3 244°3 187°3 181°7	-7°6 -14°0 -7°2 +12°7	28 (28)	112 (112)	114 208 208 (530)	141°521 May 21	JB, B	Centre	0°930	257°7	183°0 (114°9)	-12°0 (-1°7)	0 (0)	0 (0)	236 (236)
131°475 May 11	JB, B	209 Centre	0°778 0°203 0°892 0°924	288°5 168°0 101°1 74°6	297°0 245°3 184°9 182°0	+12°3 -14°2 -11°1 +13°1	22 (22)	89 (89)	124 200 137 (461)	142°874 H. May 22	ST, H	Centre	0°981 0°898	255°0 265°1	175°6 160°7 (97°0)	-15°0 -5°1 (-1°5)	0 (0)	0 (0)	901 179 (1080)
132°576 May 12	JB, B	209 Centre	0°898 0°294 0°899 0°807	285°7 224°9 107°1 70°5	295°5 245°6 169°9 182°0	+12°7 -14°6 -16°5 +14°0	27 (27)	108 (108)	218 183 156 (557)	145°588 H. May 25	H, ST	209* Centre	0°955	100°1	348°7 (61°1)	-10°0 (-1°2)	0 (0)	55 (55)	276 ^f (276)
133°451 May 13	JB, B	209 Centre	0°960 0°452 0°815	285°7 240°8 110°5	294°0 245°6 168°5	+14°2 -15°0 -18°0	22 (22)	106 (106)	128 189 (317)	146°639 H. May 26	H, ST	209* Centre	0°849	100°4	349°6 (47°2)	-9°3 (-1°0)	0 (0)	31 (31)	401 ^f (401)
135°563 May 15	JB, B	209 Centre	0°797	252°6	245°5 (193°7)	-15°2 (-2°4)	0 (0)	9 (9)	180 ^{8f} (180)	147°589 H. May 27	H, ST	209* Centre	0°708	102°1	350°3 (34°6)	-9°2 (-0°9)	4 (4)	24 (24)	522 ⁿ (522)
136°544 May 16	JB, B	Centre	0°889 0°888 0°929	281°3 252°0 96°5	242°4 242°5 112°6	+8°9 -17°0 -6°8	(0)	(0)	125 416 129 (670)	152°414 June 1	JB, B	Centre	0°862	262°8	29°9 (330°8)	-6°3 (-0°4)	0 (0)	0 (0)	114 (114)
137°657 H. May 17	ST, H	Centre	0°969	253°9	241°5 (166°0)	-16°1 (-2°1)	0 (0)	0 (0)	729 (729)	154°579 H. June 3	H, ST	Centre	0°909 0°969	111°2 52°8	238°6 230°3 (302°2)	-19°2 +35°8 (-0°1)	0 (0)	0 (0)	288 298 (586)

Group 209*, May 25-27. A small group.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 155°657	JB, B		0°860	259°7	346°5	— 8°8			130		1876. 178°580	H, ST	210†	0°797	276°5	37°1	+ 6°9	0	58	
June 4		Centre	0°896	99°8	224°8	— 8°7			81		H.					(344°4)	(+ 2°7)	(0)	(58)	(0)
June 6 } to June 9 }		No Spots or Faculae			(287°9)	(+ 0°0)	(0)	(0)	(211)		179°586	H, ST	210†	0°937	275°7	40°5	+ 6°3	7	47	
June 12 } to June 16 }		No Spots or Faculae									H.		210†	0°903	275°0	35°6	+ 5°7	8	29	
											June 28	Centre				(331°1)	(+ 2°8)	(15)	(76)	(265)
											180°094	H, A	210†	0°969	276°5	40°1	+ 7°0	16	82	
											Me.		210†	0°955	276°7	37°1	+ 7°3	0	26	
											June 29	Centre	210†	0°942	275°8	34°8	+ 6°5	34	101	
																(324°4)	(+ 2°9)	(50)	(209)	(256)
169°463	JB, B		0°907	95°8	40°2	— 4°5			368		June 30	No Spots or Faculae.								
June 18		Centre			(104°9)	(+ 1°7)	(0)	(0)	(368)		184°599	JB, B	211	0°714	250°6	308°0	— 11°2	16	64	228c
170°605	JB, B		0°767	96°5	40°3	— 3°8			269		July 3		212	0°843	100°2	208°4	— 6°7	67	299	668f
June 19		Centre			(90°0)	(+ 1°8)	(0)	(0)	(269)		Centre					(264°8)	(+ 3°4)	(83)	(363)	(896)
171°471	JB, B		0°768	327°2	112°2	— 41°7			233		185°566	H, ST	211	0°885	256°4	312°6	— 10°3	0	32	
June 20		Centre			(78°5)	(+ 1°9)	(0)	(0)	(233)		H.		211	0°818	253°8	304°9	— 11°1	0	22	
											July 4	Centre	212	0°709	104°3	208°2	— 7°5	20	196	
172°440	JB, B	210	0°932	90°1	357°2	+ 0°6	0	40	783f							(251°9)	(+ 3°5)	(20)	(250)	(224)
June 21		Centre			(65°7)	(+ 2°0)	(0)	(40)	(783)		186°578	H, ST		0°942	256°1	307°5	— 11°9			303
173°575	H, ST	210	0°800	92°5	357°8	— 0°7	7	22	377nf		H.		212	0°535	107°8	207°9	— 6°4	24	138	
June 22		Centre			(50°7)	(+ 2°2)	(7)	(22)	(377)		July 5	Centre				(238°6)	(+ 3°6)	(24)	(138)	(303)
174°580	H, ST	210	0°639	93°6	357°9	— 0°5	6	25			187°573	H, ST	212	0°338	119°5	208°4	— 6°0	10	67	
June 23		Centre			(37°3)	(+ 2°3)	(6)	(25)	(0)		H.		214	0°870	81°4	165°1	+ 9°3	0	56	168f
											July 6	Centre				(225°5)	(+ 3°7)	(10)	(123)	(168)
175°689	H, ST	210	0°416	97°1	358°4	— 0°8	0	21			188°407	JB, B	212	0°189	149°4	208°9	— 5°5	16	65	
June 24		Centre			(22°7)	(+ 2°4)	(0)	(21)	(0)				213	0°544	95°1	181°7	+ 0°4	0	10	
											July 7	Centre	214	0°758	80°4	165°3	+ 9°7	0	11	
																(214°4)	(+ 3°8)	(16)	(86)	463nf
177°432	JB, B	210*	0°470	247°6	25°5	— 7°9	0	6			189°463	JB, B	212	0°287	224°0	212°0	— 8°0	18	46	
June 26		Centre			(359°6)	(+ 2°6)	(0)	(6)	(0)				213	0°308	103°2	183°0	— 0°3	12	73	
											July 8	Centre	214	0°581	78°8	165°2	+ 9°7	3	5	
																(200°4)	(+ 3°9)	(33)	(124)	(0)

Group 210, June 21-24. Single small spot.

Group 210*, June 26. A very small spot.

Group 210†, June 27-29. A short stream of spots.

Group 211, July 3-4. Group of small spots.

Group 212, July 3-10. Group consisting mainly of three fairly large spots, of which two disappear on July 7.

Group 213, July 7-11. Group of small spots.

Group 214, July 6-8. Single small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC.		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC.		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).						Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	Area for each Group (and for Day).
1876. 191.545 July 10	JB, B	212 213 Centre	0.640 0.180	253.6 246.7	210.9 182.3 (172.8)	— 7.2 0.0 (+4.1)	6 0 (6)	23 4 (27)	241 ^m (241)	1876. 205.580 H. July 24	H, ST	217	0.586 0.910	117.4 99.8	315.2 282.8 (347.1)	— 11.1 — 6.6 (+5.4)	11 (11)	78 (78)	1430 582 (725)
192.575 H. July 11	H, ST	213 Centre	0.813 0.473	261.6 258.0	212.7 186.7 (159.2)	— 4.3 — 1.9 (+4.2)	0 (0)	25 (25)	549 (549)	206.493 July 25	JB, B	217	0.437 0.811	128.1 100.9	314.7 282.2 (335.1)	— 10.5 — 5.5 (+5.5)	22 (22)	100 (100)	293 (293)
193.496 July 12	JB, B	212 Centre	0.889	259.4	208.5 (147.0)	— 7.3 (+4.3)	0 (0)	0 (0)	609 (609)	207.495 July 26	JB, B	217	0.303	157.6	315.1 (321.8)	— 10.7 (+5.5)	19 (19)	66 (66)	0 (0)
194.589 July 13	JB, B	Centre	0.952	261.0	203.7 (132.6)	— 7.2 (+4.4)	0 (0)	0 (0)	479 (479)	208.433 July 27	JB, B	217	0.303	199.5	315.3 (309.4)	— 11.0 (+5.6)	16 (16)	42 (42)	0 (0)
195.588 H. July 14	H, ST	Centre	0.926 0.976	265.0 84.5	186.6 41.9 (119.4)	— 2.9 + 6.3 (+4.5)	0 (0)	0 (0)	138 486 (624)	209.587 H. July 28	H, ST	217	0.455 0.969	233.1 94.4	315.7 219.1 (294.1)	— 10.5 — 2.8 (+5.7)	0 (0)	17 (17)	220 (220)
July 15		No Spots								210.578 H. July 29	H, ST	Centre	0.919 0.890		(281.0)	(— 5.8)	0 (0)	0 (0)	418 328 (746)
198.488 July 17	JB, B	Centre	0.968	279.0	156.8 (81.0)	+ 9.8 (+4.8)	0 (0)	0 (0)	188 (188)	212.116 H, A Me. July 31	217 217 217 Centre	0.970 0.846 0.813 0.771	261.7 253.7 252.9 250.6	335.5 316.1 312.7 308.3 (260.7)	— 6.5 — 10.4 — 10.2 — 10.9 (+5.9)	0 0 7 0 (7)	33 32 7 (72)	226 313 ^p (539)	
200.591 July 19	JB, B	215 Centre	0.835	89.7	356.6 (53.1)	+ 3.0 (+5.0)	0 (0)	58 (58)	0 (0)	213.589 H. Aug. 1	H, ST	Centre	0.946	256.3	310.4 (241.2)	— 10.9 (+6.0)	0 (0)	0 (0)	655 (655)
201.571 July 20	JB, B	215 216 Centre	0.690 0.861	91.5 101.7	356.7 342.1 (40.2)	+ 2.6 — 7.4 (+5.0)	6 9 (15)	36 22 (58)	374 ^m (374)	214.514 Aug. 2	JB, B	Centre	0.835	258.4	284.1 (229.0)	— 6.3 (+6.0)	0 (0)	0 (0)	260 (260)
202.594 July 21	JB, B	215 216 217 Centre	0.493 0.711 0.957	94.5 105.9 102.4	357.3 343.2 315.1 (26.7)	+ 2.3 — 7.5 — 10.3 (+5.1)	0 0 32 (32)	8 4 121 (133)	273 ^m 295 ^f (568)	215.550 Aug. 3	JB, B	Centre	0.946	261.2	285.2 (215.3)	— 6.3 (+6.1)	0 (0)	0 (0)	179 (179)
203.451 July 22	JB, B	215 217 Centre	0.304 0.884	98.6 104.1	357.9 315.0 (15.3)	+ 2.4 — 9.9 (+5.2)	0 23 (23)	9 102 (111)	391 ^f (391)	Aug. 4 to Aug. 5	No Spots or Faculæ.								

Group 215, July 19-22. Single small spot.

Group 216 July 20-21. Single small spot.

Group 217, July 21-31. Single spot. It is not seen on July 29, but a number of spots in a short stream mark its place on July 31.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 219.460	JB, B	218	0.865 0.908	261.8 278.2	222.5 229.2	— 3.8 + 10.1	0 (163.6)	87 (87)	261 (261)	1876. 235.403	JB, B	220	0.367	140.2	299.2 (312.9)	— 9.4 (+ 7.1)	12 (12)	40 (40)	(0)
Aug. 7		Centre								Aug. 23		Centre							
Aug. 8		No Spots or Faculae.								237.586	JB, B	220	0.406 0.863	227.1 103.7	301.5 226.3	— 9.2 — 8.0	34 (34)	97 (97)	271 (271)
Aug. 8										Aug. 25		Centre							
221.481	JB, B	Centre	0.951	256.8	206.9 (136.9)	— 10.4 (+ 6.5)	(0)	(0)	149 (149)	238.739	ST, H	220	0.798 0.646	248.0 244.2	318.0 304.9	— 12.8 — 10.6	7 (7)	65 (83)	214 (214)
Aug. 9										Aug. 26		Centre							
Aug. 10 to Aug. 11		No Spots or Faculae.								240.588	ST, H	220	0.893 0.856	254.3 252.9	305.1 300.5	— 10.5 — 10.6	0 (7)	40 (89)	459 ^c (459)
Aug. 14		No Spots or Faculae.								Aug. 28		Centre							
227.663	H, ST	Centre	0.913	103.8	351.3 (55.1)	— 9.6 (+ 6.8)	(0)	(0)	218 (218)	241.481	JB, B	220	0.943	256.8	300.9 (232.6)	— 9.9 (+ 7.2)	0 (0)	27 (27)	466 ^p (466)
Aug. 15										Aug. 29		Centre							
228.499	JB, B	219	0.791	105.9	354.1 (44.1)	— 8.1 (+ 6.8)	0 (0)	41 (41)	(0)	242.582	ST, H	221	0.424 0.465	141.7 139.2	202.5 199.9	— 12.4 — 13.7	0 (8)	30 (50)	(0)
Aug. 16		Centre								Aug. 30		Centre							
229.465	JB, B	219	0.651	109.5	353.3 (31.3)	— 7.2 (+ 6.9)	46 (46)	127 (127)	(0)	243.451	JB, B	221	0.374	162.1	199.8 (206.5)	— 13.6 (+ 7.2)	14 (14)	44 (44)	(0)
Aug. 17		Centre								Aug. 31		Centre							
230.681	ST, H	219	0.440	121.8	353.2 (15.3)	— 7.0 (+ 6.9)	9 (9)	111 (111)	(0)	244.599	JB, B	221	0.393	207.9	202.2 (191.4)	— 13.1 (+ 7.2)	17 (17)	70 (70)	(0)
Aug. 18		Centre								Sept. 1		Centre							
231.686	ST, H	219	0.289	148.1	353.1 (1.9)	— 7.4 (+ 6.9)	10 (10)	80 (80)	(0)	245.649	ST, H	221	0.538 0.493	232.1 228.0	203.3 199.5	— 12.8 — 12.6	0 (0)	150 (189)	(0)
Aug. 19		Centre								Sept. 2		Centre							
Aug. 21		No Spots or Faculae.								247.588	ST, H	221	0.989 0.816	259.6 247.1	231.8 202.5	— 9.1 — 14.0	0 (0)	72 (83)	714 (1237)
234.587	ST, H	220	0.472	124.6	300.5 (323.6)	— 9.1 (+ 7.0)	4 (4)	45 (45)	(0)	Sept. 4		Centre							
Aug. 22		Centre								248.582	JB, B	221	0.948 0.890	266.8 250.9	209.7 198.4	— 0.6 — 13.3	0 (0)	9 (9)	152 608 ^{np} (760)
										Sept. 5		Centre							

Group 218, August 7. Single small spot.

Group 219, August 16-19. Two spots.

Group 220, August 22-29. Only one spot is seen at first, but a second of equal size appears on August 25.

Group 221, August 30-September 5. Two small spots, one of which breaks into small fragments on September 1, and finally disappears on September 5.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 249 ^h 52 ^m Sept. 6	JB, B	221 Centre	0.966	253.3	198.4 (126.3)	-14.0 (+7.3)	(0)	(0)	344 (344)		1876. 271 ^h 46 ^m Sept. 28	JB, B	224 Centre	0.675	107.1	156.4 (196.7)	-6.3 (+6.7)	81 (81)	341 (341)	(0)
Sept. 7 to Sept. 8	No Spots or Faculæ.										272 ^h 49 ^m Sept. 29	JB, B	224 Centre	0.503	115.2	156.0 (183.1)	-6.4 (+6.7)	113 (113)	421 (421)	(0)
257 ^h 58 ^m H. Sept. 14	ST, H	223 Centre	0.848	105.8	324.2 (19.8)	-9.3 (+7.2)	28 (28)	157 (157)	560 ^f (560)		273 ^h 58 ^m H. Sept. 30	H, ST	224 Centre	0.323	132.6	154.9 (168.7)	-6.2 (+6.6)	47 (47)	390 (390)	(0)
258 ^h 74 ^m H. Sept. 15	ST, H	223 Centre	0.692	112.0	324.0 (4.5)	-9.5 (+7.2)	39 (39)	136 (136)	394 ^f (394)		275 ^h 57 ^m H. Oct. 2	H, ST	224 Centre	0.330	233.5	157.9 (142.5)	-5.0 (+6.5)	26 (26)	239 (239)	(0)
259 ^h 58 ^m H. Sept. 16	ST, H	223 Centre	0.558	119.4	324.2 (353.6)	-9.7 (+7.1)	19 (19)	106 (106)	(0)		276 ^h 58 ^m H. Oct. 3	H, ST	224 Centre	0.512	249.0	157.7 (129.2)	-4.9 (+6.5)	28 (28)	238 (238)	(0)
261 ^h 44 ^m Sept. 18	JB, B	222 223 Centre	0.947 0.303	279.7 162.1	41.0 323.6 (329.0)	+11.4 -9.6 (+7.1)	0 33 (33)	31 126 (157)	149 ^p (149)		277 ^h 54 ^m Oct. 4	B, B	224 Centre	0.700	257.0	159.5 (116.5)	-4.4 (+6.4)	39 (39)	180 (180)	(0)
264 ^h 52 ^m Sept. 21	JB, B	Centre	0.942	92.2	218.3 (288.2)	+0.3 (+7.0)	(0)	(0)	670 (670)		278 ^h 44 ^m Oct. 5	JB, B	224 Centre	0.828	260.2	159.4 (104.7)	-4.4 (+6.4)	46 (46)	172 (172)	353 ^{sf} (353)
265 ^h 44 ^m Sept. 22	JB, B	Centre	0.866 0.958	93.4 109.6	216.6 206.2 (276.2)	+0.6 -16.3 (+7.0)	(0)	(0)	861 166 (1027)		279 ^h 56 ^m Oct. 6	JB, B	224 Centre	0.942 0.980	263.4 103.7	159.3 13.3 (89.8)	-4.1 -12.0 (+6.3)	34 (34)	131 (131)	405 ^{sf} 165 (570)
268 ^h 08 ^m Me. Sept. 25	H, A	Centre	0.968	85.2	165.4 (241.3)	+6.4 (+6.9)	(0)	(0)	204 (204)		Oct. 7	No Spots or Faculæ.								
269 ^h 09 ^m Me. Sept. 26	H, A	Centre	0.967	98.3	154.1 (228.1)	-6.2 (+6.8)	(0)	(0)	201 (201)		Oct. 9 to Oct. 10	No Spots or Faculæ.								
270 ^h 58 ^m H. Sept. 27	H, ST	224 Centre	0.797	102.8	157.1 (208.3)	-5.9 (+6.8)	39 (39)	403. (403)	410 ^c (410)		284 ^h 55 ^m Oct. 11	JB, B	225 Centre	0.298	159.0	17.7 (23.9)	-10.2 (+6.0)	2 (2)	18 (18)	(0)

Group 222, September 18. Single spot.

Group 223, September 14-18. Two small spots.

Group 224, September 27-October 6. Two spots of nearly equal size, of which the preceding spot grows larger and the following spot smaller on October 4 and 5.

Group 225, October 11-18. Scattered group.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1876. 185°498	JB, B	225	0°301 0°977	198°8 94°0	17°2 294°5 (11°6)	—10°6 —2°5 (+5°9)	29	99			1876. 299°049 Me.	H, A	226	0°507	235°2	217°9 (192°8)	—12°4 (+4°8)	17	79		(o)
Oct. 12		Centre					(29)	(99)	142 (142)		Oct. 26		Centre					(17)	(79)		
189°052 Me.	H, A	225	0°822	253°9	17°8 (324°7)	—9°8 (+5°6)	35	195			300°080 Me.	H, A	226	0°674	245°6	218°1 (179°3)	—12°5 (+4°7)	17	95		(o)
Oct. 16		Centre					(35)	(195)	(o)		Oct. 27		Centre					(17)	(95)		
190°468	JB, B	225	0°961 0°945	258°6 90°8	18°5 234°7 (306°0)	—9°4 +1°0 (+5°5)	144	694	554 ^c 150 (704)		Oct. 31 to Nov. 1	No Spots or Faculae.									
Oct. 17		Centre					(144)	(694)													
191°070 Me.	H, A	225	0°937 0°991	89°6 259°0	228°7 18°9 (298°1)	+2°4 —10°0 (+5°6)	14	331	395 837 ^c (1232)		306°648 H.	H, ST	226* 226* 0°945	0°666 0°598 102°9	281°9 283°1 102°9	134°0 128°8 23°1 (92°6)	+10°9 +11°0 —10°8 (+4°0)	16 18	82 61		527 (527)
Oct. 18		Centre					(14)	(331)			Nov. 2		Centre					(34)	(143)		
192°469	JB, B	226	0°907 0°821 0°894	107°6 92°1 91°6	217°1 224°6 216°6 (279°6)	—13°4 +1°4 +0°9 (+5°4)	62	308	627 ^f 154 58 (839)		307°752 H.	H, ST	226* 226* 226* 0°819	0°846 0°806 0°765 102°7	279°5 281°0 280°6 102°7	135°8 131°6 127°8 24°5 (78°1)	+10°2 +11°1 +10°6 —8°1 (+3°9)	25 0 4	174 27 70		333 ^c 377 (710)
Oct. 19		Centre					(62)	(308)			Nov. 3		Centre					(29)	(271)		
193°083 Me.	H, A	226	0°826	109°3	218°7 212°7 (271°5)	—12°7 —12°7 (+5°3)	16	163			308°664 H.	H, ST	226* 226* 0°964	0°946 0°881 134°7	279°7 280°1 134°7	137°2 127°7 0°7 (66°0)	+10°4 +10°7 —41°2 (+3°8)	36 0	138 34		382 ^c 292 (674)
Oct. 20		Centre					(26)	(270)	507 ^c (507)		Nov. 4		Centre					(36)	(172)		
194°079 Me.	H, A	226	0°688 0°756 0°785	114°5 112°4 111°1	218°7 212°7 209°6 (258°4)	—12°6 —13°1 —13°0 (+5°2)	16 17 6	121 65 48			Nov. 7 to Nov. 8	No Spots or Faculae.									
Oct. 21		Centre					(39)	(234)	391 ^c (391)												
196°220 Me.	H, A	226	0°363 0°430 0°470	145°0 135°6 131°3	217°9 212°3 209°0 (230°2)	—12°4 —13°1 —13°4 (+5°0)	22 0 8	131 38 72			313°572 Nov. 9	JB, B	227	0°876	98°8	301°1 (1°4)	—6°1 (+3°2)	0 (o)	28 (28)		202 ^p (202)
Oct. 23		Centre					(30)	(241)	(o)		Nov. 10	No Spots or Faculae.									
198°193 Me.	H, A	226	0°378 0°369 0°328	217°8 213°6 195°0	217°9 216°2 209°2 (204°2)	—12°6 —13°1 —13°6 (+4°8)	24 0 0	102 6 8			317°657 H.	H, ST	227* 228	0°810 0°925	98°3 88°4	254°0 240°0 (307°5)	—5°0 +2°6 (+2°9)	0 0 (o)	66 84		367 ^c (367)
Oct. 25		Centre					(24)	(116)	(o)		Nov. 13		Centre					(o)	(150)		

Group 226, October 19-27. One large spot and two or three small ones.

Group 226*, November 2-4. A stream of spots.

Group 227, November 9. Single spot.

Group 227*, November 13. A group seen only near the east limb.

Group 228, November 13-16. Single spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1876. 318°582 Nov. 14	JB, B	228 Centre	0·819	90°1	240°5 (295°3)	+ 1°5 (+ 2°6)	34 (34)	125 (125)	190 ^p (190)		1876. 347°561 Dec. 13	JB, B	Centre	0·799	104°8	221°3 (273°4)	- 12°3 (- 1°0)	(0)	(0)	287 (287)
319°518 Nov. 15	JB, B	228 229 ^a 229 ^b Centre	0·674 0·896 0·929	91°1 104°4 102°7	240°8 220°8 216°9 (283°0)	+ 1°2 - 11°6 - 10°9 (+ 2°5)	17 57 37 (111)	65 159 126 (350)	282 ^{sf} (282)		352°045 Me. Dec. 18	H, A	231 Centre	0·940	78°5	145°2 (214°3)	+ 10°2 (- 1°6)	53 (53)	258 (258)	389 ^c (389)
320°497 Nov. 16	JB, B	228 229 ^a 229 ^b Centre	0·490 0·779 0·839	92°3 107°5 104°6	240°9 220°9 214°5 (270°1)	+ 1°0 - 11°9 - 10°8 (+ 2°4)	6 36 25 (67)	30 132 87 (249)	(0)		353°248 Me. Dec. 19	H, A	231 Centre	0·825	76°5	144°2 (198°6)	+ 10°1 (- 1°7)	49 (49)	394 (394)	(0)
322°080 Me. Nov. 18	H, A	229 ^a 229 ^b Centre	0·508 0·603	116°1 111°4	221°5 214°4 (249°1)	- 10°9 - 10°7 (+ 2°2)	13 6 (19)	62 44 (106)	(0)		354°116 Me. Dec. 20	H, A	231 Centre	0·696	73°5	144°4 (187°0)	+ 10°8 (- 1°8)	66 (66)	402 (402)	(0)
323°493 Nov. 19	JB, B	229 ^a 229 ^b 230 Centre	0·271 0·364 0·954	145°6 128°4 260°9	221°5 213°6 302°3 (230°6)	- 10°8 - 11°0 - 8°0 (+ 2°1)	27 15 0 (42)	102 59 26 (187)	349 ^{mf} (349)		355°103 Me. Dec. 21	H, A	231 Centre	0·513	65°5	145°8 (174°0)	+ 10°6 (- 1°9)	42 (42)	150 (150)	(0)
324°097 Me. Nov. 20	H, A	229 ^a 229 ^b Centre	0·977 0·224 0·269	261°8 177°3 147°1	299°6 222°0 214°1 (222°6)	- 7°5 - 10°9 - 11°0 (+ 2°0)	8 0 (8)	46 17 (63)	242 (242)		356°549 Dec. 22	JB, B	231 Centre	0·273	37°0	145°4 (155°0)	+ 10°5 (- 2°1)	89 (89)	667 (667)	(0)
325°021 Me. Nov. 21	H, A	229 ^a 229 ^b Centre	0·304 0·226 0·954	222°0 196°0 80°0	222°3 214°0 138°6 (210°4)	- 11°1 - 10°6 - 8°9 (+ 1°9)	4 0 (4)	46 21 (67)	280 (280)		357°066 Me. Dec. 23	H, A	231 Centre	0·224	11°9	145°5 (148°2)	+ 10°4 (- 2°2)	44 (44)	274 (274)	(0)
Nov. 28		No Spots or Faculæ.									361°020 Me. Dec. 27	H, A	231 Centre	0·779	285°2	145°7 (96°1)	+ 10°0 (- 2°7)	85 (85)	501 (501)	(0)
333°477 Nov. 29	JB, B	Centre	0·956	102°8	26°8 (99°0)	- 12°0 (+ 0°8)	(0)	(0)	186 (186)		363°053 Me. Dec. 29	H, A	231 Centre	0·973	280°7	145°1 (69°4)	+ 9°7 (- 2°9)	103 (103)	378 (378)	(0)
340°463 Dec. 6	JB, B	Centre	0·915	99°8	301°3 (6°9)	- 9°0 (- 0°1)	(0)	(0)	136 (136)		Dec. 30		No Spots or Faculæ.							

Group 229, November 15-21. Two spots of nearly equal size.

Group 230, November 19. Single spot.

Group 231, December 18-29. Single spot.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULAE.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1877. Jan. 3 to Jan. 5											1877. 16 ^o 089	H, A	232a	0 ^o 371	310 ^o 6	195 ^o 2	+ 9 ^o 3	40	166	
											Me.		233a	0 ^o 571	63 ^o 6	147 ^o 5	+ 10 ^o 5	53	363	
											Jan. 17		233	0 ^o 614	58 ^o 6	146 ^o 1	+ 14 ^o 5	0	14	
													Centre			(178 ^o 7)	(- 4 ^o 9)	(93)	(543)	(o)
5 ^o 57 Me. Jan. 6	H, A	231* 231* Centre	0 ^o 777 0 ^o 794	77 ^o 9 80 ^o 0	274 ^o 2 272 ^o 3 (323 ^o 9)	+ 6 ^o 9 + 5 ^o 6 (- 3 ^o 8)	0 0 (o)	42 16 (58)		(c)	17 ^o 049 Me. Jan. 18	H, A	232a 233a Centre	0 ^o 537 0 ^o 410	296 ^o 5 50 ^o 1	195 ^o 0 147 ^o 4 (166 ^o 0)	+ 9 ^o 5 + 10 ^o 4 (- 5 ^o 0)	27 42 (69)	181 367 (548)	
7 ^o 48 Me. Jan. 8	H, A	231†	0 ^o 539	72 ^o 7	266 ^o 7 (297 ^o 7)	+ 5 ^o 8 (- 4 ^o 0)	0 (o)	18 (18)		(o)	18 ^o 041 Me. Jan. 19	H, A	232a 233a 233 Centre	0 ^o 698 0 ^o 297 0 ^o 369	289 ^o 2 20 ^o 0 21 ^o 2	194 ^o 8 147 ^o 1 145 ^o 1 (153 ^o 0)	+ 9 ^o 5 + 11 ^o 1 + 15 ^o 0 (- 5 ^o 1)	39 17 0 (56)	219 360 12 (591)	
8 ^o 68 Me. Jan. 9	H, A	231† Centre	0 ^o 345	59 ^o 1	267 ^o 1 (284 ^o 3)	+ 6 ^o 3 (- 4 ^o 1)	0 (o)	8 (8)		(o)	19 ^o 050 Me. Jan. 20	H, A	232a 233a Centre	0 ^o 840 0 ^o 309	284 ^o 9 333 ^o 5	194 ^o 8 147 ^o 6 (139 ^o 6)	+ 9 ^o 6 + 10 ^o 9 (- 5 ^o 2)	29 20 (49)	216 202 (418)	
9 ^o 68 Me. Jan. 10	H, A	232* 232* 231† 232a 232 Centre	0 ^o 465 0 ^o 426 0 ^o 191 0 ^o 967 0 ^o 990	260 ^o 0 259 ^o 6 21 ^o 6 79 ^o 4 81 ^o 2	298 ^o 6 296 ^o 0 267 ^o 1 197 ^o 1 190 ^o 2 (271 ^o 1)	- 8 ^o 4 - 8 ^o 3 + 5 ^o 8 + 9 ^o 1 + 8 ^o 1 (- 4 ^o 3)	0 0 0 51 6 (57)	20 29 47 280 95 (471)		350 ^c (350)	21 ^o 118 Me. Jan. 22	H, A	232a 233a 233 Centre	0 ^o 992 0 ^o 630 0 ^o 610 0 ^o 608	280 ^o 3 295 ^o 3 293 ^o 0 297 ^o 9	193 ^o 9 147 ^o 8 146 ^o 9 145 ^o 6 (112 ^o 4)	+ 9 ^o 5 + 11 ^o 2 + 9 ^o 3 + 12 ^o 0 (- 5 ^o 4)	56 18 0 0 (74)	207 133 9 9 (358)	459 ^c (459)
10 ^o 243 Me. Jan. 11	H, A	232* 232* 231† 232a 232 Centre	0 ^o 702 0 ^o 653 0 ^o 277 0 ^o 871 0 ^o 930	261 ^o 6 262 ^o 7 311 ^o 6 77 ^o 6 79 ^o 0	300 ^o 2 296 ^o 4 267 ^o 7 196 ^o 6 188 ^o 6 (255 ^o 7)	- 9 ^o 1 - 8 ^o 1 + 6 ^o 3 + 8 ^o 5 + 8 ^o 5 (- 4 ^o 4)	0 0 0 38 0 (38)	19 27 59 180 76 (361)		295 ^c (295)	22 ^o 500 Jan. 23	JB, B	233a Centre	0 ^o 824	288 ^o 2	147 ^o 0 (94 ^o 3)	+ 11 ^o 6 (- 5 ^o 5)	16 (16)	88 (88)	(o)
											23 ^o 536 Jan. 24	JB, B	233a Centre	0 ^o 926	285 ^o 1	146 ^o 3 (80 ^o 6)	+ 11 ^o 6 (- 5 ^o 6)	17 (17)	86 (86)	283 ^{nf} (283)
11 ^o 052 Me. Jan. 12	H, A	232a 232 Centre	0 ^o 776 0 ^o 848	75 ^o 1 76 ^o 5	195 ^o 9 188 ^o 6 (245 ^o 0)	+ 8 ^o 5 + 8 ^o 9 (- 4 ^o 5)	35 0 (35)	190 30 (220)		221 ^c (221)	24 ^o 064 Me. Jan. 25	H, A	233a Centre	0 ^o 966	283 ^o 9	146 ^o 8 (73 ^o 6)	+ 11 ^o 9 (- 5 ^o 6)	0 (o)	156 (156)	516 ^f (516)
12 ^o 036 Me. Jan. 13	H, A	232a 232 Centre	0 ^o 631 0 ^o 711	70 ^o 6 72 ^o 4	195 ^o 2 188 ^o 8 (232 ^o 0)	+ 8 ^o 4 + 9 ^o 1 (- 4 ^o 6)	19 0 (19)	172 25 (197)		(o)	25 ^o 533 Jan. 26	M, M	234 Centre	0 ^o 710	94 ^o 6	9 ^o 0 (54 ^o 3)	- 7 ^o 3 (- 5 ^o 8)	0 (o)	28 (28)	200 ^c (200)
14 ^o 585 Jan. 15	JB, B	232a 233 Centre	0 ^o 903 0 ^o 247 0 ^o 800	285 ^o 5 14 ^o 6 72 ^o 7	261 ^o 0 194 ^o 9 147 ^o 7 (198 ^o 5)	+ 11 ^o 8 + 9 ^o 0 + 10 ^o 8 (- 4 ^o 8)	192 55 75 (130)	192 215 325 (540)		706 ^{mf} (898)	26 ^o 024 Me. Jan. 27	H, A	234 Centre	0 ^o 626	94 ^o 8	9 ^o 0 (47 ^o 8)	- 7 ^o 5 (- 5 ^o 8)	0 (o)	11 (11)	(o)

Group 231*, January 6. Two small spots.

Group 231†, January 8-11. One or two spots, mostly small.

Group 232, January 10-22. One regular spot, *a*, usually with a small companion.

Group 232*, January 10-11. A short stream of spots.

Group 233, January 15-25. One regular spot, *a*, usually with one or two small companions. *a* preserves its form, but decreases in size as it crosses the Sun.

Group 234, January 26-27. One small faint spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1877. 28.467 Jan. 29.	JB, B	Centre	0.945	98.2	304.3 (15.7)	- 9.8 (- 6.0)	(0)	(0)	299 (299)		1877. 49.559 Feb. 19	JB, B	Centre	0.872	289.5	155.4 (98.0)	+ 13.2 (- 7.0)	(0)	(0)	176 (176)	
29.534 Jan. 30	JB, B	234* Centre	0.864	94.4	301.7 (1.7)	- 7.2 (- 6.1)	(0)	9 (9)	190p (190)		Feb. 20 to Feb. 21	No Spots or Faculæ.									
30.078 Me. Jan. 31	H, A	234* Centre	0.780	93.9	303.1 (354.5)	- 6.9 (- 6.1)	(0)	12 (12)	(0)		Feb. 23 to Feb. 24	No Spots or Faculæ.									
32.083 Me. Feb. 2	H, A	234* Centre	0.407	93.1	304.0 (328.1)	- 7.0 (- 6.2)	3 (3)	14 (14)	(0)		56.048 Me. Feb. 26	H, A	236 Centre	0.968	80.0	298.5 (12.5)	+ 7.8 (- 7.2)	0 (0)	112 (112)	366f (366)	
33.557 Feb. 3	JB, B	234* Centre	0.088	113.6	304.0 (308.7)	- 8.3 (- 6.3)	(0)	16 (16)	(0)		57.546 Feb. 27	JB, B	236 Centre	0.837	76.1	298.0 (352.8)	+ 7.4 (- 7.2)	36 (36)	133 (133)	596nf (596)	
36.097 Me. Feb. 6	H, A	234* Centre	0.633	265.8	314.7 (275.3)	- 7.5 (- 6.5)	(0)	7 (7)	(0)		59.089 Me.	H, A	236* 236* 236 236	0.327 0.381 0.591 0.621	93.4 94.3 67.4 65.2	313.2 309.9 299.2 297.7	- 8.0 - 8.3 + 7.1 + 9.2	6 9 10 0	31 34 36 7		
37.459 Feb. 7	JB, B	234* 235 Centre	0.827 0.900	265.4 75.6	313.4 195.3 (257.3)	- 7.5 + 9.9 (- 6.6)	0 28 (28)	6 124 (130)	(0)		Mar. 1	H, A	236* 236* 236	0.115 0.047 0.275	257.6 233.4 27.8	313.4 309.1 299.5	- 8.6 - 8.8 + 6.9	0 11 2	46 97 16	(0)	
38.523 Feb. 8	JB, B	235 Centre	0.778	72.1	194.9 (243.3)	+ 9.5 (- 6.6)	31 (31)	154 (154)	(0)		Mar. 3	H, A	236* 236* 236	0.547 0.479 0.412	265.7 265.4 313.5	313.1 308.6 297.4	- 8.4 - 8.5 + 9.6	0 10 0	19 133 39		
40.073 Me. Feb. 10	H, A	235 Centre	0.524 0.956	60.8 76.5	195.4 152.0 (222.9)	+ 8.8 + 10.7 (- 6.7)	21 (21)	128 (128)	394 (394)		Mar. 5	H, A	236* 236* 236	0.547 0.479 0.412	265.7 265.4 313.5	313.1 308.6 297.4	- 8.4 - 8.5 + 9.6	0 10 0	19 133 39		
46.508 Feb. 16	JB, B	235 Centre	0.860 0.854	284.9 80.5	195.3 80.8 (138.2)	+ 9.0 + 4.4 (- 7.0)	28 (28)	123 (123)	204p 92 (296)		Mar. 8	JB, B	237 Centre	0.529	261.2	265.3 (233.3)	- 10.8 (- 7.2)	0 (0)	36 (36)	(0)	
47.533 Feb. 17	JB, B	235 Centre	0.954	281.8	195.4 (124.7)	+ 9.0 (- 7.0)	33 (33)	146 (146)	216n (216)		Mar. 9	H, A	237 Centre	0.919 0.620	283.8 261.2	291.9 265.8 (227.3)	+ 9.6 - 11.1 (- 7.2)	0 (0)	37 (37)	410 (410)	

Group 234*, January 30-February 7. Very small faint spot, that breaks up into several fragments on February 3.
 Group 235, February 7-17. A well-defined regular spot, which gradually diminishes in size, but does not otherwise change its form.
 Group 236, February 26-March 5. A group of three or four small spots.
 Group 236*, March 1-5. A short stream of spots.
 Group 237, March 8-10. Faint ill-defined spot, which breaks up into several spots on March 10.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1877. 68 ⁵⁵ 9 Mar. 10	JB, B	237 Centre	0 ⁹ 10	262 ⁶	273 ⁶ (207 ⁷)	— 9 ⁸ (— 7 ²)	0 (0)	40 (40)	238 ^f (238)	
Mar. 14		No Spots	or Faculae.							
Mar. 16		No Spots	or Faculae.							
75 ⁴⁸ 1 Mar. 17	JB, B	238 Centre	0 ² 11	249 ⁷	128 ⁰ (116 ⁴)	— 11 ¹ (— 7 ¹)	5 (5)	39 (39)	(0)	
76 ³⁹ 9 Mar. 18	JB, B	238 Centre	0 ⁴ 24	258 ⁵	129 ² (104 ³)	— 11 ² (— 7 ⁰)	46 (46)	197 (197)	(0)	
77 ⁵⁶ 2 Mar. 19	JB, B	238 Centre	0 ⁶ 48	261 ⁰	129 ⁶ (89 ⁰)	— 11 ¹ (— 7 ⁰)	39 (39)	261 (261)	(0)	
79 ¹⁶ 9 Me. Mar. 21	H, A	238 238 238 Centre	0 ⁸ 88 0 ⁸ 65 0 ⁸ 27	261 ² 259 ⁷ 261 ¹	131 ⁰ 128 ² 124 ⁰ (67 ⁸)	— 11 ⁰ — 12 ⁴ — 11 ³ (— 6 ⁹)	17 0 8 (25)	151 18 69 (238)	320 ^c (320)	
80 ⁴⁶ 5 Mar. 22	JB, B	238 Centre	0 ⁹ 85	259 ⁴	131 ⁸ (50 ⁷)	— 11 ⁶ (— 6 ⁹)	50 (50)	173 (173)	373 ^{nf} (373)	
81 ⁵⁰ 3 Mar. 23	JB, B	Centre	0 ⁸ 94 0 ⁹ 77	75 ⁴ 97 ⁴	335 ⁹ 318 ⁸ (37 ¹)	+ 9 ⁸ — 8 ⁷ (— 6 ⁹)	(0)	(0)	237 391 (628)	
82 ⁴⁷ 4 Mar. 24	JB, B	Centre	0 ⁹ 26	96 ³	316 ⁰ (24 ²)	— 8 ⁴ (— 6 ⁸)	(0)	(0)	730 (730)	
85 ⁵⁶ 1 Mar. 27	JB, B	Centre	0 ⁹ 28	100 ²	274 ⁷ (343 ⁵)	— 12 ⁰ (— 6 ⁷)	(0)	(0)	446 (446)	
Mar. 28 to Mar. 29		No Spots	or Faculae.							
1877. 89 ⁴² 7 Mar. 31	JB, B	Centre	0 ⁷ 75	294 ⁸	339 ⁰ (292 ⁶)	+ 14 ⁵ (— 6 ⁵)	(0)	(0)	208 (208)	
93 ⁵⁷ 1 Apr. 4	JB, B	Centre	0 ⁹ 46 0 ⁹ 31 0 ⁹ 51	261 ³ 284 ⁰ 177 ⁰	309 ⁵ 304 ⁵ 224 ⁴ (237 ⁹)	— 10 ³ + 10 ⁶ — 77 ⁷ (— 6 ³)	(0)	(0)	273 307 156 (736)	
94 ⁵⁶ 4 Apr. 5	JB, B	Centre	0 ⁹ 52	279 ⁰	295 ⁷ (224 ⁸)	+ 6 ⁶ (— 6 ²)	(0)	(0)	354 (354)	
95 ⁵⁰ 0 Apr. 6	JB, B	239 Centre	0 ⁹ 82	101 ⁷	132 ⁵ (212 ⁴)	— 12 ⁶ (— 6 ¹)	8 (8)	63 (63)	207 ^c (207)	
96 ⁴⁶ 0 Apr. 7	JB, B	239 Centre	0 ⁹ 14 0 ⁹ 17	286 ⁰ 101 ⁴	263 ⁴ 132 ⁷ (199 ⁷)	+ 12 ⁰ — 12 ⁹ (— 6 ⁰)	3 (3)	34 (34)	124 445 ^c (569)	
Apr. 9		No Spots	or Faculae.							
Apr. 11		No Spots	or Faculae.							
101 ⁴⁰ 9 Apr. 12	JB, B	Centre	0 ⁸ 77	267 ⁰	195 ⁸ (134 ⁴)	— 5 ⁶ (— 5 ⁷)	(0)	(0)	140 (140)	
Apr. 13 to Apr. 14		No Spots	or Faculae.							
105 ¹² 3 Me. Apr. 16	H, A	240 240 240 Centre	0 ³ 87 0 ³ 23 0 ³ 02	242 ⁴ 241 ² 233 ⁴	106 ¹ 102 ³ 99 ⁹ (85 ⁴)	— 15 ⁴ — 14 ¹ — 15 ⁶ (— 5 ⁴)	33 6 8 (47)	216 118 34 (368)	(0)	
106 ⁴⁷ 6 Apr. 17	JB, B	240 Centre	0 ⁹ 09 0 ⁶ 14	257 ⁷ 252 ²	133 ² 104 ⁵ (67 ⁵)	— 13 ⁴ — 15 ⁰ (— 5 ³)	70 (70)	401 (401)	211 (211)	

Group 238, March 17–22. A scattered group of ill-defined spots, which gradually condenses into two well-defined spots. On March 22 one of the spots has gone off the limb, and the other is only partly visible.

Group 239, April 6–7. One small well-defined spot.

Group 240, April 16–20. A group composed of three spots, of which the smallest gradually disappears.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—continued.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Area for each Group (and for Day).
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1877. 108°523 Apr. 19	JB, B	240 Centre	0°891	256°4	103°6 (40°4)	-14°4 (-5°1)	58 (58)	302 (302)	337 ^f (337)	
109°470 Apr. 20	JB, B	240 241 Centre	0°966 0°705 0°971	257°0 84°4 79°6	103°4 343°6 313°0 (27°9)	-13°9 +0°4 +8°8 (-5°0)	56 4 (60)	243 41 (284)	355 ^f 319 ⁿ 115 (789)	
112°408 Apr. 23	JB, B	241 242 Centre	0°122 0°720	17°7 96°1	347°0 303°1 (349°1)	+1°9 -7°6 (-4°7)	27 21 (48)	137 73 (210)	(o)	
113°423 Apr. 24	JB, B	241 242 Centre	0°241 0°534	299°8 96°8	347°7 303°5 (335°7)	+2°3 -7°5 (-4°6)	23 11 (34)	69 41 (110)	(o)	
114°417 Apr. 25	JB, B	241 242 Centre	0°447 0°303	284°7 102°6	348°1 305°3 (322°6)	+2°4 -8°1 (-4°5)	20 16 (36)	68 48 (116)	(o)	
116°560 Apr. 27	M, B	241 242 Centre	0°823 0°285	277°4 261°5	348°9 310°6 (294°2)	+3°6 -6°6 (-4°3)	0 13 (13)	23 56 (79)	311 ⁿ (311)	
117°062 Me. Apr. 28	H, A	242 Centre	0°396 0°973	263°0 101°0	310°8 210°6 (287°6)	-6°7 -11°7 (-4°3)	0 (o)	33 (33)	260 (260)	
119°554 Apr. 30	M, B	242 243 Centre	0°893 0°827	246°4 50°9	318°0 207°8 (254°7)	-6°8 +28°6 (-4°0)	11 0 (11)	33 25 (58)	468 ^f 136 ⁿ (604)	
120°107 Me. May 1	H, A	242 243 Centre	0°853 0°947 0°768	264°4 263°4 46°5	305°9 318°6 208°0 (247°3)	-6°9 -7°5 +28°8 (-4°0)	0 0 (o)	28 47 (75)	221 (221)	
121°075 Me. May 2	H, A	243 243 Centre	0°946 0°659 0°681	264°7 33°3 38°1	305°6 209°9 205°9 (234°5)	-6°3 +29°8 +28°9 (-3°9)	0 0 4 (4)	27 41 (68)	223 (223)	
1877. 122°428 May 3	M, B	243 Centre	0°571	12°4	208°6 (216°7)	+30°1 (-3°7)	13 (13)	48 (48)	(o)	
123°516 May 4	M, B	243 244 Centre	0°561 0°259	350°9 273°5	208°1 217°2 (202°3)	+29°9 -2°6 (-3°6)	0 12 (12)	32 49 (81)	(o)	
124°447 May 5	M, B	244 Centre	0°491	272°3	219°3 (190°0)	-1°9 (-3°5)	10 (10)	31 (31)	(o)	
126°414 May 7	M, B	244 245 Centre	0°799 0°838 0°871	312°3 270°1 104°5	206°9 220°7 103°8 (164°0)	+30°0 -1°7 -14°2 (-3°3)	4 11 35 (39)	11 151 (162)	229 125 ^f 230 ^{sf} (584)	
127°411 May 8	M, B	244 245 Centre	0°891 0°943 0°743 0°948	306°5 269°1 106°3 80°2	206°5 221°1 103°7 80°3 (150°8)	+30°1 -1°9 -14°2 +8°2 (-3°2)	0 31 (31)	20 139 (159)	191 202 ^f 215 ^{sf} 230 (838)	
128°455 May 9	M, B	245 246 Centre	0°962 0°925 0°573 0°823	302°5 263°9 110°6 77°9	206°5 204°7 103°6 82°9 (137°0)	+30°1 -6°9 -14°1 +8°2 (-3°1)	17 61 11 (28)	61 35 (96)	207 129 196 ⁿ (532)	
129°469 May 10	M, B	245 246 Centre	0°388 0°676	120°3 74°1	103°5 82°6 (123°6)	-14°0 +8°4 (-3°0)	19 30 (49)	68 107 (175)	(o)	
130°591 May 11	M, B	245 246 Centre	0°213 0°439	155°8 64°3	103°6 85°3 (108°7)	-14°0 +8°3 (-2°8)	14 26 (40)	61 139 (200)	(o)	
134°549 May 15	M, B	246 Centre	0°526	291°2	86°0 (56°4)	+8°8 (-2°4)	23 (23)	105 (105)	(o)	
135°093 Me. May 16	H, A	246	0°619	287°1	85°8 (49°2)	+8°6 (-2°3)	11 (11)	90 (90)	(o)	

Group 241, April 20-27. A group of small spots, which change greatly on April 23.

Group 242, April 23-May 1. A group consisting principally of two small spots, of which one disappears on April 27.

Group 243, April 30-May 4. A scattered group of small faint spots.

Group 244, May 4-8. A scattered group of small faint spots, condensing on May 5 into a single spot.

Group 245, May 7-11. A single well-defined spot.

Group 246, May 9-18. One small well-defined spot. A second appears on May 10, but soon disappears again.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—continued.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1877. 136°051 Me. May 17	H, A	246 246 247	0°807 0°771 0°974	288°8 283°5 79°4	88°2 85°7 320°4	+13°7 +8°9 +9°8	1 8 0	26 67 25	} 300 366f (396)		1877. 156°464 June 6	M, B Centre	249	0°349	121°8	109°0 (126°4)	-10°3 (+0°2)	33 (33)	143 (143)	0 (0)
					(36°5)	(-2°2)	(9)	(118)												
137°418	M, B	246 247	0°933 0°834 0°872	280°1 76°5 97°7	86°4 323°2 317°9	+8°6 +10°0 -7°7	0 26 (18°4)	14 92 (106)	382nf 302f 141		157°413 June 7	M, B Centre	249	0°206	153°8	108°6 (113°9)	-10°3 (+0°3)	36 (36)	144 (144)	0 (0)
May 18	Centre				(18°4)	(-2°1)	(26)	(106)	(825)		158°506 June 8	M, B Centre	249	0°246	219°5	108°5 (99°4)	-10°4 (+0°5)	37 (37)	159 (159)	0 (0)
143°470 May 24	M, B	247 Centre	0°473	291°4	324°7 (298°4)	+8°7 (-1°3)	19 (19)	89 (89)	(0)		159°419 June 9	M, B Centre	249	0°403	242°1	108°4 (87°3)	-10°3 (+0°6)	49 (49)	221 (221)	0 (0)
144°460 May 25	M, B	247 Centre	0°641	285°9	323°7 (285°3)	+9°1 (-1°2)	29 (29)	93 (93)	(0)		161°469 June 11	M, B Centre	249	0°760	255°0	108°3 (60°2)	-10°7 (+0°8)	33 (33)	184 (184)	3200 (320)
145°441 May 26	M, B	247 248 Centre	0°798 0°626	281°9 256°4	324°2 310°1 (272°3)	+8°7 -9°3 (-1°1)	7 15 (22)	61 53 (114)	458n (458)		164°416 June 14	M, B Centre		0°816 0°913	77°9 99°9	327°3 316°1 (21°3)	+10°5 -8°6 (+1°1)	(0)	(0)	150 465 (615)
147°420 May 28	M, B	Centre	0°972 0°908	281°3 259°5	321°9 310°9 (246°1)	+10°8 -9°9 (-0°8)	(0)	(0)	200 177 (377)		165°397 June 15	M, B Centre		0°790	101°7	317°0 (8°3)	-8°5 (+1°2)	(0)	(0)	260 (260)
148°410 May 29	M, B	Centre	0°977	260°8	310°5 (233°0)	-9°2 (-0°7)	(0)	(0)	250 (250)		166°412 June 16	M, B Centre		0°737	83°8	307°6 (354°8)	+5°5 (+1°4)	(0)	(0)	205 (205)
May 31	No Spots or Faculae.																			
153°499 June 3	M, B	249 Centre	0°851 0°959	102°3 75°8	108°2 92°9 (165°7)	-10°5 +13°6 (-0°1)	11 (11)	37 (37)	160nf 212 (372)		175°428 June 25	M, B Centre	250	0°956 0°298 0°874	257°2 152°7 91°3	307°2 227°4 174°7 (235°4)	-11°4 -12°8 +0°1 (+2°5)	24 (24)	70 (70)	200 156 (356)
154°432 June 4	M, B	249 Centre	0°898 0°727	277°5 104°3	216°8 107°8 (153°3)	+6°7 -10°3 (-0°0)	37 (37)	238 (238)	140 0 (140)		177°539 June 27	M, B Centre		0°899	269°2	271°2 (207°4)	-0°5 (+2°7)	(0)	(0)	128 (128)
155°441 June 5	M, B	249 Centre	0°553	109°0	108°0 (140°0)	-10°2 (+0°1)	42 (42)	200 (200)	0 (0)		178°490 June 28	M, B Centre	251	0°590 0°976	245°0 100°9	227°8 118°4 (194°9)	-12°0 -10°0 (+2°8)	10 (10)	30 (30)	215 (215)

Group 247, May 17-26. One small spot. A second appears on May 24, and a third on May 26.

Group 248, May 26. Two small spots.

Group 249, June 3-11. Two spots, one of them very small.

Group 250, June 25. Two small spots.

Group 251, June 28-29. A very close pair of well-defined small spots.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued.*

Greenwich Civil Time.	Measures.	No. of Group and Letter for Spot	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1877. 179 ^h 45 ^m	M, B	251	0.749 0.937 0.912	250.1 217.9 101.6	228.1 237.8 117.4	-12.7 -46.0 -9.3	32	97	300 ^f 157 265		1877. 201 ^h 51 ^m 4	M, B		0.948 0.938	278.9 254.7	321.9 317.9	+10.0 -12.4	(o)	(o)	95 261	
June 29		Centre			(182.0)	(+2.9)	(32)	(97)	(722)		July 21		Centre			(250.2)	(+5.0)	(o)	(o)	(357)	
183 ^h 44 ^m 2	M, B	252	0.626	77.2	91.1	+10.6	10	31	o		July 23		No Spots or Faculæ.								
July 3		Centre			(129.4)	(+3.4)	(10)	(31)	(o)		210 ^h 41 ^m 6	M, B		0.879	48.6	74.8	+38.8	(o)	(o)	51	
184 ^h 44 ^m 0	M, B	252	0.789 0.400	269.7 73.3	168.0 93.3	+2.0 +9.8	3	31	116		July 30		Centre			(132.4)	(+5.8)	(o)	(o)	(51)	
July 4		Centre			(116.1)	(+3.5)	(3)	(31)	(116)		211 ^h 40 ^m 8	M, B		0.800	44.3	73.4	+39.1	(o)	(o)	91	
185 ^h 40 ^m 7	M, B	252	0.190	56.1	94.2	+9.6	1	25	o		July 31		Centre			(119.3)	(+5.9)	(o)	(o)	(91)	
July 5		Centre			(103.3)	(+3.6)	(1)	(25)	(o)		213 ^h 52 ^m 3	M, B	254	0.617	282.4	129.2	+12.4	19	47	o	
July 9		No Spots or Faculæ.									Aug. 2		Centre			(91.3)	(+6.0)	(19)	(47)	(o)	
190 ^h 43 ^m 6	M, B		0.854	279.5	95.5	+10.2	(o)	(o)	190		214 ^h 50 ^m 3	M, B	254	0.792	280.7	130.9	+12.1	o	20	104 ^f	
July 10		Centre			(36.9)	(+4.0)	(o)	(o)	(190)		Aug. 3		Centre			(78.4)	(+6.1)	(o)	(20)	(104)	
191 ^h 10 ^m 4	H, A		0.981	280.5	107.3	+11.1	(o)	(o)	324		Aug. 4		No Spots or Faculæ.								
July 11		Centre			(28.1)	(+4.1)	(o)	(o)	(324)		Aug. 7		No Spots or Faculæ.								
192 ^h 49 ^m 5	M, B		0.928	102.2	303.0	-9.6	(o)	(o)	245		225 ^h 52 ^m 3	M, B		0.858	108.3	236.4	-12.0	(o)	(o)	139	
July 12		Centre			(9.7)	(+4.2)	(o)	(o)	(245)		Aug. 14		Centre			(292.6)	(+6.7)	(o)	(o)	(139)	
194 ^h 06 ^m 3	H, A	252*	0.316	211.7	358.4	-11.2	5	26	o		233 ^h 50 ^m 6	M, B	255	0.991	83.0	104.5	+7.9	27	116	334 ⁿ	
July 14		Centre			(348.7)	(+4.4)	(5)	(26)	(o)		Aug. 22		Centre			(187.2)	(+7.0)	(27)	(116)	(334)	
July 17		No Spots or Faculæ.									234 ^h 53 ^m 4	M, B	255	0.939	83.4	103.3	+8.6	32	149	654 ⁿ	
198 ^h 46 ^m 8	M, B	253	0.565 0.870	237.4 109.1	319.6 232.8	-13.4 -14.0	6	16	258		235 ^h 44 ^m 0	M, B	255	0.848	84.1	103.2	+8.8	30	230	695 ^f	
July 18		Centre			(290.5)	(+4.8)	(6)	(16)	(258)		Aug. 24		Centre			(161.6)	(+7.1)	(30)	(230)	(695)	
200 ^h 51 ^m 9	M, B		0.947 0.858	283.5 253.6	335.1 320.3	+14.4 -11.4	(o)	(o)	160 215		239 ^h 47 ^m 8	M, B	255	0.082	70.3	103.8	+8.7	15	41	o	
July 20		Centre			(263.4)	(+4.9)	(o)	(o)	(375)		Aug. 28		Centre			(108.3)	(+7.2)	(15)	(41)	(o)	

Group 252, July 3-5. One very small spot which breaks up into two or three on July 4.

Group 252*, July 14. Several small spots in a semicircle.

Group 253, July 18. One very small spot.

Group 254, August 2-3. Two very small spots, one of which disappears on August 3.

Group 255, August 22-31. A large spot divided into three portions by bridges. On August 28 it has separated into two small spots, one of which disappears on August 29.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measures.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).		
1877. 240°570	M, B	255	0°942 0°182	268°1 277°4	164°0 104°3	+ 0°7 + 8°4	11 (93°9)	30 (+7°2)	90 (11)		1877. 263°463	M, B	258	0°946 0°349	253°3 233°3	219°9 167°8	- 13°3 - 5°3	1 (151°5)	12 (+7°0)	330 (1)	
Aug. 29		Centre									Sept. 21		Centre								
242°406	M, B	255	0°573	273°5	104°7 (69°6)	+ 7°9 (+7°2)	4 (4)	19 (19)	0 (0)		266°405	M, B	258	0°842	258°4	168°7 (112°9)	- 5°9 (+6°9)	0 (0)	0 (0)	245 (245)	
Aug. 31		Centre									Sept. 24		Centre								
243°506	M, B	255	0°728 0°935	275°6 100°3	102°1 357°4	+ 9°0 - 7°0	0 (55°1)	0 (+7°2)	538 202		267°111	H, A	258*	0°907 0°555	260°4 254°6	167°4 135°9	- 5°7 - 2°7	0 0	5 133	360 334 ^c	
Sept. 1		Centre									Sept. 25		Centre								
246°503	M, B	256	0°931	82°6	306°3 (15°5)	+ 9°5 (+7°3)	25 (25)	117 (117)	296 ^c (296)		268°588	M, B	259	0°901	101°9	21°5 (84°0)	- 7°6 (+6°8)	20 (20)	85 (85)	308 ^{af} (308)	
Sept. 4		Centre									269°506	M, B	259	0°785	104°8	22°1 (71°9)	- 7°2 (+6°8)	8 (8)	33 (33)	381 ^{af} (381)	
247°474	M, B	256	0°822	83°6	306°5 (2°7)	+ 9°4 (+7°3)	46 (46)	216 (216)	296 ^c (296)		Sept. 27		Centre								
Sept. 5		Centre									270°411	M, B	259	0°651	109°2	21°8 (59°9)	- 7°0 (+6°8)	6 (6)	35 (35)	0 (0)	
248°436	M, B	256	0°676	84°2	307°2 (350°0)	+ 9°2 (+7°3)	51 (51)	213 (213)	149 (149)		Sept. 28		Centre								
Sept. 6		Centre									271°521	M, B	259	0°877 0°456 0°921	280°9 119°4 100°9	107°0 21°7 339°7	+ 12°7 - 6°7 - 7°3	3 (45°2)	9 (+6°7)	241 (3)	
249°392	M, B	256	0°512	84°3	306°4 (337°3)	+ 9°1 (+7°3)	45 (45)	249 (249)	0 (0)		Sept. 29		Centre								
Sept. 7		Centre									273°415	M, B	260	0°458 0°941	196°3 82°3	28°0 309°5	- 19°4 + 9°5	3 (20°2)	8 (+6°6)	196 (3)	
251°520	M, B	256	0°030	35°1	308°2 (309°2)	+ 8°6 (+7°2)	36 (36)	158 (158)	0 (0)		Oct. 1		Centre								
Sept. 9		Centre									277°421	M, B	258	0°842	260°8	23°5 (327°3)	- 4°2 (+6°4)	0 (0)	0 (0)	242 (242)	
254°405	M, B	256	0°607	274°7	308°7 (271°2)	+ 8°6 (+7°2)	26 (45)	106 (181)	2118 ^f (211)		Oct. 5		Centre								
Sept. 12		Centre									278°440	M, B	257	0°936	259°7	22°2 (314°3)	- 7°3 (+6°3)	0 (0)	0 (0)	389 (389)	
260°524	M, B	257	0°593	240°1	221°8 (190°4)	- 11°1 (+7°1)	1 (1)	15 (27)	186 ^c (186)		Oct. 6		Centre								
Sept. 18		Centre									289°424	M, B	258	0°809	76°7	115°1 (169°1)	+ 14°0 (+5°5)	0 (0)	0 (0)	82 (82)	
262°087	H, A	258	0°203	178°0	169°3 (169°7)	- 4°6 (+7°1)	0 (0)	6 (12)	0 (0)		Oct. 17		Centre								
Sept. 20		Centre									Oct. 23		No Spots or Faculae.								
											296°447	M, B	258	0°839	79°3	19°3 (76°4)	+ 11°7 (+4°9)	0 (0)	0 (0)	157 (157)	
											Oct. 24		Centre								

Group 256, September 4-12. Two spots; the following spot, which is small and faint, disappears on September 9, and the larger spot has greatly increased in size by September 5.

Group 257, September 12-18. One small spot.

Group 258, September 18-21. Two small faint spots.

Group 258*, September 25. A very small spot.

Group 259, September 25-29. One small spot.

Group 260, October 1. One very small spot.

Measures of Positions and Areas of Sun Spots and Faculæ on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.		Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).								Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).	
1877. 298°072 Me. Oct. 26	H, A	261 261 Centre	0°982 0°991	99°6 97°8	337°0 333°7 (55°0)	— 8°5 — 7°0 (+4°8)	39 0 (39)	444 151 (595)	(o)		1877. 311°440 Nov. 8	M, B	Centre	0°959	265°2	311°8 (238°8)	— 3°6 (+3°5)	(o)	(o)	539 (539)
302°513 Oct. 30	M, B	261 262 Centre	0°747 0°421 0°703	257°5 119°7 98°0	43°4 334°8 312°4 (356°4)	— 6°4 — 8°0 — 2°5 (+4°3)	139 20 (159)	605 120 (725)	120 347 ^c (467)		313°442 Nov. 10	M, B	Centre	0°961	265°2	285°8 (212°3)	— 3°7 (+3°3)	(o)	(o)	405 (405)
303°448 Oct. 31	M, B	261 262 Centre	0°268 0°528	142°4 101°1	334°6 313°0 (344°1)	— 8°0 — 2°2 (+4°2)	124 25 (149)	662 124 (786)	(o)		315°441 Nov. 12	M, B	Centre	0°944	80°2	115°2 (185°9)	+10°2 (+3°0)	(o)	(o)	191 (191)
304°445 Nov. 1	M, B	261 262 Centre	0°788 0°222 0°322 0°775	283°3 195°9 109°2 81°3	22°7 334°5 313°3 (331°0)	+13°0 — 8°1 — 2°1 (+4°1)	116 25 (141)	778 139 (917)	313 173 (486)		317°494 Nov. 14	M, B	263 Centre	0°590	111°1	125°2 (158°9)	— 9°7 (+2°7)	38 (38)	111 (111)	(o)
305°131 Me. Nov. 2	H, A	261 262 Centre	0°938 0°299 0°171	258°1 227°3 131°7	30°3 334°7 314°6 (321°9)	— 9°7 — 7°7 — 2°5 (+4°1)	104 770 4 (108)	770 76 (846)	270 (270)		319°548 Nov. 16	M, B	263 Centre	0°232	155°2	126°2 (131°9)	— 9°7 (+2°4)	16 (16)	58 (58)	(o)
306°482 Nov. 3	M, B	261 262 Centre	0°541 0°188	248°1 234°2	334°4 312°8 (304°1)	— 8°2 — 2°4 (+3°9)	120 18 (138)	562 76 (638)	(o)		320°586 Nov. 17	M, B	263 Centre	0°265	214°4	126°9 (118°2)	— 10°3 (+2°3)	15 (15)	27 (27)	(o)
307°491 Nov. 4	M, B	261 262 Centre	0°715 0°394	254°6 254°6	334°7 313°0 (290°6)	— 8°2 — 2°5 (+3°8)	101 6 (107)	543 45 (588)	(o)		325°508 Nov. 22	M, B	264 Centre	0°965 0°899 0°980	257°3 280°7 100°6	127°2 117°0 335°5 (53°3)	— 11°8 +10°4 — 10°1 (+1°7)	86 (86)	301 (301)	183 104 363 ^c (650)
308°442 Nov. 5	M, B	261 262 Centre	0°845 0°590	257°7 259°4	334°6 313°6 (278°2)	— 8°3 — 3°2 (+3°7)	100 0 (100)	508 24 (532)	358 ^c (358)		326°436 Nov. 23	M, B	264 Centre	0°922	101°9	334°9 (41°1)	— 10°3 (+1°6)	79 (79)	392 (392)	609 ^c (609)
310°073 Me. Nov. 7	H, A	261 261 Centre	0°816 0°979 0°956	264°3 260°7 258°8	310°9 334°2 328°4 (256°8)	— 2°5 — 8°4 — 9°6 (+3°6)	89 0 (89)	564 15 (579)	386 920 ^c (1306)		327°103 Me. Nov. 24	H, A	264 Centre	0°852	103°7	335°1 (32°3)	— 10°8 (+1°5)	50 (50)	562 (562)	181 ^c (181)
											328°218 Me. Nov. 25	H, A	264 264 Centre	0°652 0°696	110°9 106°9	340°2 335°1 (17°6)	— 12°3 — 10°6 (+1°4)	0 51 (51)	17 505 (522)	(o)
											329°552 Nov. 26	M, B	264 Centre	0°464	115°3	334°9 (0°1)	— 10°3 (+1°2)	95 (95)	468 (468)	(o)

Group 261, October 26–November 7. A large well-defined spot surrounded by several small fragments.

Group 262, October 30–November 5. A somewhat scattered group of small spots.

Group 263, November 14–17. Two small spots, the second of which moves more quickly than the first, and grows gradually smaller.

Group 264, November 22–December 3. A well-defined spot, closely surrounded by several smaller ones.

Measures of Positions and Areas of Sun Spots and Faculae on Photographs—*continued*.

Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.	Greenwich Civil Time.	Measurers.	No. of Group, and Letter for Spot.	Distance from Centre in terms of Sun's Radius.	Position Angle from Sun's Axis.	HELIOGRAPHIC		SPOTS.		FACULÆ.								
					Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).							Longitude.	Latitude.	Area of UMBRA for each Spot (and for Day).	Area of WHOLE for each Spot (and for Day).									
1877. 330°221 Me. Nov. 27	H, A	264 Centre	0°294 0°340	134°3 127°1	338°9 335°2 (351°2)	-10°7 -10°7 (+1°1)	0 50 (50)	24 379 (403)	(0)	1877. Dec. 5 to Dec. 7	}	No Spots	or Faculæ.	°	°	°											
331°469 Nov. 28	M, B	264 Centre	0°193	180°5	334°9 (334°7)	-10°1 (+1°0)	73 (73)	343 (343)	(0)	Dec. 10 to Dec. 11										}	No Spots	or Faculæ.					
332°086 Me. Nov. 29	H, A	264 Centre	0°238	215°7	334°7 (326°6)	-10°2 (+0°9)	44 (44)	327 (327)	(0)	Dec. 14 to Dec. 15																	
333°428 Nov. 30	M, B	264 Centre	0°472	246°9	335°0 (308°9)	-10°0 (+0°7)	68 (68)	261 (261)	(0)	Dec. 17	No Spots	or Faculæ.															
335°518 Dec. 2	M, B	264 Centre	0°819 0°965	257°3 62°6	335°4 208°4 (281°4)	-10°1 +26°5 (+0°4)	50 (50)	203 (203)	6448 64 (528)	354°100 Me. Dec. 21	H, A	264* Centre	0°887	103°3	334°6 (36°6)	-12°7 (-1°9)	0 (0)	37 (37)	184c (184)								
336°077 Me. Dec. 3	H, A	264 Centre	0°881	258°1	335°0 (274°0)	-10°3 (+0°4)	31 (31)	215 (215)	528c (528)	364°466 Dec. 31	M, B	265 Centre	0°960 0°944	255°6 279°1	333°8 329°9 (260°0)	-14°7 +7°5 (-3°2)	0 (0)	34 (34)	205 192f (397)								

Group 264*, December 21. A small spot.
Group 265, December 31. Two small spots.

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

AREAS AND POSITIONS OF GROUPS OF SUN SPOTS

DEDUCED FROM THE MEASUREMENT

OF THE

SOLAR PHOTOGRAPHS

FOR EACH DAY IN THE YEARS

1874-1877.

AREAS AND HELIOGRAPHIC POSITIONS OF GROUPS OF SUN SPOTS DEDUCED FOR EACH DAY FROM THE MEASUREMENTS OF THE PHOTOGRAPHS TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT THE OBSERVATORY OF HARVARD COLLEGE, CAMBRIDGE, U.S.A., AND AT THE MELBOURNE OBSERVATORY, AUSTRALIA, IN THE YEARS 1874 TO 1877.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight.

The Projected Area of the Umbra and Whole Spots is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Column "Longitude from Central Meridian" gives the Mean Heliographic longitude of the group, reckoned from the meridian passing through the centre of the Sun's disk at the moment of observation; longitudes west of the centre being reckoned as positive.

Dates for which the decimal of the day is not given indicate days for which no photographic Record is at present available. In these cases the means have been taken of the areas and positions of the spot-groups as measured on the day immediately preceding, and that immediately following the day for which the photograph is lacking. These interpolated values are enclosed in brackets, but are used in taking the final means for each spot-group.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 82.							
Single spot which breaks up into two on April 18.							
1874. ^a April 17.485	0	208	0	113	113.3	+ 5.8	-19.9
18.506	0	117	0	60	114.3	+ 5.6	- 5.4
Means ...	...	...	0	87	113.80	+ 5.70	...
Group 83.							
Single spot.							
April 27.556	0	150	0	171	296.0	-12.4	-64.1
28.574	53	285	41	221	297.0	-12.4	-49.7
29.663	53	306	33	189	296.6	-12.6	-35.7
30.577	72	369	40	205	296.3	-13.0	-23.9
May 1.539	62	369	32	191	296.2	-13.0	-11.3
2.499	88	349	45	178	296.0	-13.3	+ 1.2
3	No photograph.	(35	171	296.0	-13.5	+14.9)	
4.571	43	284	25	164	295.9	-13.7	+28.5
5.490	24	200	16	133	295.6	-13.6	+40.4
6.432	25	227	21	188	295.1	-13.2	+52.3
7.515	27	149	34	188	295.2	-13.7	+66.7
Means ...	...	...	29	182	295.99	-13.13	...
Group 84.							
Small scattered group.							
April 30.577	0	46	0	24	331.5	+ 7.9	+11.3
May 1.539	0	60	0	34	331.8	+ 7.7	+24.3
2.499	0	46	0	29	331.3	+ 8.0	+36.5
Means ...	...	...	0	29	331.53	+ 7.87	...
Group 85.							
A large spot with several small ones near it.							
1874. ^a May 1.539	0	38	0	42	244.4	- 3.7	-63.1
2.499	14	168	11	132	243.9	- 3.9	-50.9
3	No photograph.	(20	223	246.1	- 4.3	-35.1)	
4.571	53	593	28	314	248.2	- 4.7	-19.2
5.490	61	548	31	277	248.1	- 5.1	- 7.1
6.432	22	645	11	324	247.1	- 5.4	+ 4.3
7.515	73	494	39	264	248.4	- 5.3	+19.9
8.552	70	428	42	258	248.5	- 5.6	+33.8
9.497	48	322	35	233	248.3	- 5.1	+46.0
10	No photograph.	(18	167	248.5	- 5.2	+59.7)	
11.526	0	58	0	100	248.7	- 5.2	+73.3
Means ...	...	...	21	212	247.29	-4.86	...
Group 86.							
Two large spots.							
May 6.432	0	156	0	248	171.5	+ 6.5	-71.3
7.515	76	495	72	467	171.5	+ 7.4	-57.0
8.552	140	706	98	494	171.7	+ 7.5	-43.0
9.497	108	639	64	378	171.6	+ 7.4	-30.7
10	No photograph.	(34	287	172.2	+ 7.3	-16.7)	
11.526	8	384	4	196	172.7	+ 7.1	- 2.7
Means ...	...	...	45	345	171.87	+ 7.20	...
Group 87.							
A large group of many spots.							
May 7.515	58	591	93	954	156.1	- 6.9	-72.4
8.552	40	1107	39	1075	155.6	- 6.6	-59.1
9.497	177	1159	130	852	155.1	- 7.0	-47.2

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.				Umbra.	Whole Spot.							
Group 87—continued.									Group 90. One large spot of very irregular shape.								
1874. a May 10	No photograph.	(91	640	155.9	— 7.1	— 33.0)			1874. a May 26.442	58	376	59	384	278.2	+ 11.3	— 59.9	
11.526	98	807	52	427	156.7	— 7.2	— 18.7		27	No photograph.	(55	353	278.4	+ 11.2	— 46.4)		
12	No photograph.	(48	389	156.8	— 7.1	— 5.6)			28	No photograph.	(52	322	278.6	+ 11.1	— 32.9)		
13	No photograph.	(45	350	156.9	— 7.0	+ 7.5)			29	No photograph.	(48	290	278.8	+ 10.9	— 19.4)		
14	No photograph.	(41	312	157.0	— 6.9	+ 20.6)			30.472	87	502	45	259	279.0	+ 10.8	— 5.8	
15	No photograph.	(38	273	157.1	— 6.8	+ 33.7)			31	No photograph.	(39	231	279.2	+ 11.2	+ 7.7)		
16.438	47	322	34	235	157.2	— 6.6	+ 46.8		June 1.481	58	368	32	202	279.4	+ 11.6	+ 21.2	
17	No photograph.	(17	164	158.2	— 6.7	+ 61.0)			2.527	55	364	34	226	279.4	+ 11.2	+ 35.1	
18.441	0	48	0	92	159.1	— 6.7	+ 75.1		3	No photograph.	(36	221	279.4	+ 11.1	+ 47.8)		
Means ...	...	...	52	480	156.81	— 6.88	...		4.466	37	210	38	216	279.3	+ 10.9	+ 60.6	
									5.466	0	113	0	213	280.0	+ 11.6	+ 74.6	
Group 88. A group of three small spots widely separated.									Means ...	...	...	40	265	279.06	+ 11.17	...	
									Group 91. One well-defined spot of regular shape.								
May 9.497	0	84	0	68	249.1	+ 20.5	+ 46.8		June 1.481	30	100	33	111	195.1	— 7.3	— 63.1	
10	No photograph.	(0	56	247.0	+ 21.2	+ 58.1)			2.527	49	216	38	166	195.4	— 6.6	— 48.9	
11.526	0	27	0	44	244.8	+ 21.9	+ 69.4		3	No photograph.	(33	154	195.4	— 6.8	— 36.1)		
Means ...	...	...	0	56	246.97	+ 21.20	...		4.466	49	258	27	142	195.4	— 7.0	— 23.3	
									5.466	23	248	12	127	196.2	— 7.0	— 9.2	
Group 89. Two or three small spots.									Means ...	...	...	29	140	195.50	— 6.94	...	
									Group 92. Two faint spots.								
May 16.438	0	59	0	79	42.5	— 13.4	— 67.9		June 11.534	0	97	0	50	121.7	— 11.1	— 3.4	
17	No photograph.	(0	53	43.4	— 13.4	— 53.8)			12.417	0	58	0	30	121.7	— 11.3	+ 8.3	
18.441	0	41	0	27	44.3	— 13.4	— 39.7		13.409	38	198	21	108	120.2	— 11.1	+ 19.9	
19	No photograph.	(0	28	44.6	— 13.5	— 26.2)			14	No photograph.	(11	69	121.5	— 10.7	+ 35.4)		
20.445	0	53	0	28	44.9	— 13.6	— 12.6		15.552	0	36	0	29	122.8	— 10.2	+ 50.9	
21.559	0	59	0	30	44.9	— 13.7	+ 2.2		Means ...	...	...	6	57	121.58	— 10.88	...	
22.515	0	30	0	16	45.6	— 13.7	+ 15.5		Group 92*. Two spots.								
Means ...	...	...	0	37	44.31	— 13.53	...		June 15.552	0	53	0	29	91.1	— 10.9	+ 19.2	
									16	No photograph.	(0	85	92.0	— 10.6	+ 33.7)		
									17	No photograph.	(0	140	93.0	— 10.2	+ 47.6)		
									18	No photograph.	(0	195	93.9	— 9.8	+ 61.6)		
									19.527	0	123	0	250	94.8	— 9.5	+ 75.5	
									Means ...	...	...	0	140	92.96	— 10.20	...	
Group 89*. Two large spots of irregular shape.																	
May 20.445	85	542	47	301	35.9	— 16.2	— 21.6										
21.559	10	367	5	192	33.9	— 16.1	— 8.8										
22.515	35	509	18	265	34.6	— 16.2	+ 4.5										
23	No photograph.	(14	210	35.5	— 15.9	+ 18.4)			June 15.552	0	53	0	29	91.1	— 10.9	+ 19.2	
24	No photograph.	(10	155	36.4	— 15.6	+ 32.3)			16	No photograph.	(0	85	92.0	— 10.6	+ 33.7)		
25	No photograph.	(6	100	37.3	— 15.3	+ 46.2)			17	No photograph.	(0	140	93.0	— 10.2	+ 47.6)		
26.442	3	43	3	44	38.2	— 14.9	+ 60.1		18	No photograph.	(0	195	93.9	— 9.8	+ 61.6)		
Means ...	...	...	15	181	35.97	— 15.74	...		19.527	0	123	0	250	94.8	— 9.5	+ 75.5	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 93. One small spot.							
1874. _a June 13 ⁴⁰⁹	o	45	o	26	129°3	+ 8°7	+ 29°0
Means ...	...	...	o	26	129°3	+ 8°7	...
Group 94. One spot, which greatly increases in size on June 19, and breaks up into several fragments.							
June 15 ⁵⁵²	o	126	o	126	12°3	+ 12°1	- 59°6
16	No photograph.	(7)	199	12°1	+ 11°8	- 46°7	
17	No photograph.	(14)	272	11°8	+ 11°5	- 33°8	
18	No photograph.	(21)	345	11°6	+ 11°2	- 20°9	
19 ⁵²⁷	53	815	27	418	11°3	+ 10°9	- 8°0
20	No photograph.	(36)	461	11°8	+ 10°7	+ 6°2	
21	No photograph.	(45)	504	12°4	+ 10°5	+ 20°3	
22 ⁶⁰⁸	89	899	54	548	12°9	+ 10°4	+ 34°4
23 ⁴⁶⁹	71	801	52	589	14°0	+ 10°5	+ 46°9
24 ⁴⁵⁸	32	447	34	481	16°4	+ 10°2	+ 62°3
25 ⁵¹²	32	193	70	428	17°2	+ 10°1	+ 77°1
Means ...	...	...	33	397	13°07	+ 10°90	...
Group 95. A very scattered group composed principally of five spots. It undergoes very rapid changes in form and in size during its course.							
June 24 ⁴⁵⁸	o	28	o	62	237°3	+ 21°1	- 76°8
25 ⁵¹²	o	85	o	113	232°9	+ 22°3	- 67°2
26	No photograph.	(21)	243	228°9	+ 20°8	- 57°6	
27 ⁵⁷⁴	54	481	42	373	224°8	+ 19°3	- 48°0
28	No photograph.	(43)	346	224°3	+ 18°0	- 36°4	
29 ⁴¹⁶	77	561	44	319	223°7	+ 16°7	- 24°7
30 ⁴⁰⁹	52	678	27	355	224°6	+ 17°0	- 10°7
July 1	No photograph.	(29)	271	225°7	+ 17°2	+ 3°9	
2 ⁴⁶⁴	57	340	31	186	226°7	+ 17°3	+ 18°6
3 ⁵²⁹	o	68	o	42	227°2	+ 17°2	+ 33°2
4 ⁴⁰³	28	135	20	97	227°1	+ 17°6	+ 44°7
5	No photograph.	(10)	80	227°1	+ 17°3	+ 58°8	
6 ⁵⁴⁶	o	37	o	63	227°0	+ 16°9	+ 72°9
Means ...	...	...	21	196	227°48	+ 18°36	...
Group 96. Single spot. On June 29 it has expanded into a long straggling group of small spots. The group undergoes very rapid change in form and size during the whole of its course.							
June 27 ⁵⁷⁴	o	33	o	17	261°0	- 8°4	- 11°8

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 96—continued.							
1874. June 28	No photograph.	(22	218	261°7	- 9°3	+ 1°1	
29 ⁴¹⁶	83	792	44	419	262°3	- 10°1	+ 13°9
30 ⁴⁰⁹	173	1268	100	733	262°2	- 10°4	+ 26°9
July 1	No photograph.	(83	671	262°2	- 10°2	+ 40°5	
2 ⁴⁶⁴	75	688	66	609	262°2	- 9°9	+ 54°1
3 ⁵²⁹	4	107	7	167	264°5	- 9°6	+ 70°5
4 ⁴⁰³	o	25	o	59	259°7	- 8°9	+ 77°3
Means ...	...	...	40	362	261°98	- 9°60	...
Group 97. One small faint spot. It breaks up into a cluster of very small spots on July 2.							
June 30 ⁴⁰⁹	o	28	o	22	186°7	- 8°7	- 48°6
July 1	No photograph.	(1	33	187°8	- 8°8	- 33°9	
2 ⁴⁶⁴	2	79	1	43	188°9	- 8°8	- 19°2
3 ⁵²⁹	o	153	o	79	190°6	- 8°5	- 3°4
4 ⁴⁰³	o	21	o	11	191°5	- 8°9	+ 9°1
Means ...	...	...	o	38	189°10	- 8°74	...
Group 98. Two spots. They are small on July 2 but much larger on the following days, and form two streams. Only one spot of the group, 98a, is still on the disk on July 13.							
July 2 ⁴⁶⁴	o	14	o	14	148°5	+ 12°4	- 59°6
3 ⁵²⁹	31	317	22	223	150°0	+ 12°9	- 44°0
4 ⁴⁰³	131	1054	77	620	151°4	+ 11°4	- 31°0
5	No photograph.	(126	818	151°3	+ 11°4	- 17°0	
6 ⁵⁴⁶	343	2002	174	1016	151°2	+ 11°4	- 2°9
7 ⁴⁵⁴	300	2395	154	1228	151°2	+ 11°0	+ 9°1
8 ⁵¹³	266	2342	148	1301	152°8	+ 10°8	+ 24°8
9 ⁵³⁵	276	1976	179	1283	153°5	+ 11°4	+ 39°0
10 ⁵⁰¹	164	1081	130	858	152°7	+ 11°5	+ 51°0
11	No photograph.	(87	612	148°0	+ 9°7	+ 59°7	
12	No photograph.	(43	365	143°3	+ 7°9	+ 68°4	
13 ⁵⁴⁹	o	53	o	118	138°6	+ 6°1	+ 77°2
Means ...	...	...	95	705	149°38	+ 10°66	...
Group 99. At first a single well-defined spot. On July 3 and 4 a row of small spots forms immediately behind it.							
July 2 ⁴⁶⁴	13	84	18	120	138°9	- 5°4	- 69°2
3 ⁵²⁹	38	262	33	228	139°5	- 4°1	- 54°5
4 ⁴⁰³	33	579	23	405	139°1	- 5°8	- 43°3
5	No photograph.	(56	423	138°8	- 5°4	- 29°5	
6 ⁵⁴⁶	167	838	88	441	138°4	- 4°9	- 15°7

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 99—continued.								
1874. ^d						°	°	°
July 7 ⁴⁵⁴	90	602	46	307	138.1	— 4.8	— 4.0	
8 ⁵¹³	107	638	55	329	138.1	— 4.8	+ 10.1	
9 ⁵³⁵	45	379	25	213	139.3	— 5.3	+ 24.8	
10 ⁵⁰¹	31	176	20	113	139.3	— 5.2	+ 37.6	
11	No photograph.	(14	100	139.2	— 5.3	+ 51.0)		
12	No photograph.	(7	86	139.2	— 5.4	+ 64.4)		
13 ⁵⁴⁹	0	30	0	72	139.1	— 5.5	+ 77.7	
Means ...	...	...	32	236	138.92	— 5.16	...	
Group 100. One large regular spot.								
July 4 ⁴⁰³	0	154	0	532	101.7	— 11.1	— 80.7	
5	No photograph.	(55	576	101.5	— 10.6	— 66.8)		
6 ⁵⁴⁶	126	719	109	620	101.2	— 10.1	— 52.9	
7 ⁴⁵⁴	121	772	83	529	101.2	— 10.8	— 40.9	
8 ⁵¹³	178	889	103	514	101.4	— 10.1	— 26.6	
9 ⁵³⁵	156	803	83	427	101.7	— 10.5	— 12.8	
10 ⁵⁰¹	91	818	47	424	101.7	— 10.2	0.0	
11	No photograph.	(64	442	101.7	— 10.5	+ 13.5)		
12	No photograph.	(81	460	101.8	— 10.8	+ 27.0)		
13 ⁵⁴⁹	142	699	97	479	101.8	— 11.0	+ 40.4	
14 ⁵¹²	61	267	54	236	102.4	— 10.9	+ 53.8	
15 ⁴⁴³	116	343	151	445	102.1	— 9.9	+ 65.8	
16 ⁵²⁴	0	150	0	537	102.8	— 10.5	+ 80.8	
Means ...	...	...	71	479	101.77	— 10.54	...	
Group 101. Two spots, the first being very small. They greatly decrease in size on July 7, and on July 8 one disappears altogether. The spots 98 to 101 seem to suffer continual changes.								
July 6 ⁵⁴⁶	25	152	14	85	128.4	+ 6.6	— 25.7	
7 ⁴⁵⁴	0	44	0	23	127.9	+ 6.7	— 14.2	
8 ⁵¹³	0	35	0	19	136.0	+ 4.9	+ 8.0	
9 ⁵³⁵	0	19	0	10	136.7	+ 4.5	+ 22.2	
Means ...	...	...	4	34	132.25	+ 5.68	...	
Group 102. On July 10 one small spot. On July 13 it has become two of much larger size. These two spots become more and more widely separated, increase in size, and break up into several portions as the group crosses the sun.								
July 10 ⁵⁰¹	0	35	0	29	48.3	+ 14.5	— 53.4	
11	No photograph.	(5	53	47.7	+ 14.1	— 40.6)		
12	No photograph.	(10	77	47.0	+ 13.8	— 27.9)		
13 ⁵⁴⁹	27	191	14	100	46.3	+ 13.4	— 15.1	
14 ⁵¹²	0	92	0	47	46.1	+ 14.1	— 2.5	
Group 102—continued.								
1874. ^d						°	°	°
July 15 ⁴⁴³	74	274	38	141	45.9	+ 13.8	+ 9.6	
16 ⁵²⁴	48	315	28	185	53.0	+ 12.7	+ 31.0	
17 ⁵¹⁶	54	338	41	258	58.1	+ 10.5	+ 49.2	
18 ⁵¹¹	33	161	34	168	57.4	+ 10.5	+ 61.7	
Means ...	...	...	19	118	49.98	+ 13.04	...	
Group 103. One large regular spot.								
July 14 ⁵¹²	0	39	0	87	331.1	+ 18.7	— 77.5	
15 ⁴⁴³	46	118	55	141	331.1	+ 17.4	— 65.2	
16 ⁵²⁴	45	216	36	174	331.1	+ 18.5	— 50.9	
17 ⁵¹⁶	44	251	29	164	330.6	+ 18.6	— 38.3	
18 ⁵¹¹	39	222	22	127	330.2	+ 18.3	— 25.5	
19	No photograph.	(22	102	329.8	+ 18.4	— 12.6)		
20 ⁵¹³	43	149	22	77	329.3	+ 18.4	+ 0.3	
21 ⁵⁰³	29	103	15	54	329.0	+ 18.4	+ 12.9	
22	No photograph.	(12	42	328.7	+ 18.6	+ 25.8)		
23 ⁴⁹⁷	12	46	8	30	328.4	+ 18.8	+ 38.6	
24 ⁵⁶⁵	0	29	0	24	328.8	+ 18.3	+ 53.2	
Means ...	...	...	20	93	329.83	+ 18.40	...	
Group 104. At first one faint spot, which breaks up into two or three on July 16.								
July 15 ⁴⁴³	0	94	0	53	10.8	+ 13.5	— 25.5	
16 ⁵²⁴	0	33	0	17	9.8	+ 14.4	— 12.2	
Means ...	...	...	0	35	10.30	+ 13.95	...	
Group 104*. A very faint close cluster of small spots. The group has partly passed round the limb on July 25.								
July 16 ⁵²⁴	0	124	0	77	345.2	+ 6.2	— 36.8	
17 ⁵¹⁶	66	604	36	328	346.2	+ 6.5	— 22.7	
18 ⁵¹¹	159	855	81	436	346.3	+ 6.2	— 9.4	
19	No photograph.	(110	594	347.0	+ 6.4	+ 4.6)		
20 ⁵¹³	261	1421	138	752	347.7	+ 6.6	+ 18.5	
21 ⁵⁰³	292	1214	172	714	347.9	+ 6.0	+ 31.8	
22	No photograph.	(160	895	348.1	+ 6.3	+ 45.1)		
23 ⁴⁹⁷	157	1140	148	1075	348.2	+ 6.5	+ 58.4	
24 ⁵⁶⁵	92	576	158	993	348.9	+ 5.8	+ 73.3	
25 ⁴⁶⁰	0	25	0	71	344.2	+ 5.6	+ 80.4	
Means ...	...	...	100	594	346.97	+ 6.21	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 105. One regular spot.								
1874. ^a July 23 ⁴⁹⁷	25	113	52	231	213.7	+ 5.2	-76.4	
24 ⁵⁶⁵	49	258	49	261	214.9	+ 5.3	-60.7	
25 ⁴⁶⁰	74	398	56	299	215.2	+ 4.8	-48.6	
26	No photograph.		(56	294	215.4	+ 5.4	-35.1	
27	No photograph.		(56	290	215.6	+ 6.0	-21.6	
28	No photograph.		(55	285	215.8	+ 6.6	- 8.1	
29	No photograph.		(55	280	216.0	+ 7.2	+ 5.4	
30 ⁴⁵²	105	524	55	276	216.1	+ 7.7	+18.8	
31 ⁴²⁰	75	394	44	232	216.8	+ 7.9	+31.8	
Aug. 1	No photograph.		(44	206	217.0	+ 7.7	+45.3	
2	No photograph.		(43	180	217.2	+ 7.6	+58.8	
3 ⁴³⁴	27	95	43	153	217.4	+ 7.4	+72.3	
Means ...	...	...	51	249	215.93	+ 6.57	...	
Group 106. A number of spots in a fine stream, <i>b</i> the leader on August 3 and the succeeding days is a large regular spot.								
July 30 ⁴⁵²	135	928	95	634	154.8	+ 9.8	-42.5	
31 ⁴²⁰	182	1056	109	621	153.9	+ 9.5	-31.1	
Aug. 1	No photograph.		(102	578	153.0	+ 9.7	-18.7	
2	No photograph.		(96	535	152.1	+ 9.9	- 6.3	
3 ⁴³⁴	176	971	89	493	151.2	+10.0	+ 6.1	
4	No photograph.		(86	499	151.5	+ 9.8	+19.6	
5	No photograph.		(83	505	151.8	+ 9.6	+33.1	
6 ⁴³⁷	108	703	80	510	152.0	+ 9.4	+46.6	
7	No photograph.		(72	583	152.9	+ 9.3	+60.8	
8 ⁴⁵¹	36	356	64	656	153.7	+ 9.1	+74.9	
Means ...	...	...	88	561	152.69	+ 9.61	...	
Group 107. One large spot, and two or three small fragments near it. It gradually diminishes in size.								
July 31 ⁴²⁰	27	115	44	189	112.0	+10.5	-73.0	
Aug. 1	No photograph.		(43	230	111.9	+10.6	-59.8	
2	No photograph.		(42	272	111.9	+10.6	-46.5	
3 ⁴³⁴	68	523	41	313	111.8	+10.7	-33.3	
4	No photograph.		(40	270	112.1	+10.9	-19.8	
5	No photograph.		(39	227	112.4	+11.1	- 6.3	
6 ⁴³⁷	75	362	38	184	112.6	+11.4	+ 7.2	
7	No photograph.		(32	169	112.8	+11.5	+20.7	
8 ⁴⁵¹	43	252	26	153	112.9	+11.6	+34.1	
Group 107— <i>continued.</i>								
1874. ^a Aug. 9	No photograph.		(33	165	112.9	+11.8	+47.1	
10 ⁴³¹	41	181	40	177	112.8	+12.0	+60.2	
11 ⁵¹³	16	65	30	123	114.0	+11.8	+75.7	
Means ...	...	...	37	206	112.51	+11.21	...	
Group 108. A long line of small spots. It is seen much foreshortened on August 10, being very close to the limb, and is therefore difficult to measure.								
Aug. 3 ⁴³⁴	61	282	42	193	110.2	-20.3	-34.9	
4	No photograph.		(44	190	110.4	-20.3	-21.5	
5	No photograph.		(46	187	110.6	-20.3	- 8.0	
6 ⁴³⁷	83	324	47	183	110.9	-20.3	+ 5.5	
7	No photograph.		(59	250	111.9	-20.4	+19.8	
8 ⁴⁵¹	104	463	71	317	112.9	-20.4	+34.1	
9	No photograph.		(45	253	114.7	-20.4	+49.0	
10 ⁴³¹	13	139	18	188	116.4	-20.4	+63.8	
Means ...	...	...	47	220	112.25	-20.35	...	
Group 109. One small spot.								
Aug. 3 ⁴³⁴	36	104	25	72	104.4	-11.1	-40.7	
4	No photograph.		(23	72	104.4	-11.2	-27.5	
5	No photograph.		(22	73	104.3	-11.3	-14.3	
6 ⁴³⁷	38	139	20	73	104.3	-11.4	- 1.1	
7	No photograph.		(17	65	104.2	-11.6	-12.1	
8 ⁴⁵¹	24	96	14	56	104.2	-11.7	+25.4	
9	No photograph.		(14	51	104.2	-11.6	+38.5	
10 ⁴³¹	16	53	14	45	104.1	-11.5	+51.5	
11 ⁵¹³	0	33	0	45	104.5	-11.8	+66.2	
Means ...	...	...	17	61	104.29	-11.47	...	
Group 110. A large regular spot.								
Aug. 8 ⁴⁵¹	23	150	80	518	356.9	+ 2.2	-81.9	
9	No photograph.		(92	510	357.3	+ 2.2	-68.5	
10 ⁴³¹	118	577	103	502	357.6	+ 2.1	-55.0	
11 ⁵¹³	144	815	95	536	357.9	+ 2.5	-40.4	
12 ⁴³⁹	179	831	102	475	357.8	+ 2.4	-28.2	
13	No photograph.		(91	448	358.1	+ 2.4	-14.4	
14 ⁵⁰¹	159	836	80	420	358.3	+ 2.4	- 0.5	
15 ⁴³²	147	898	76	463	358.0	+ 2.3	+11.5	
16	No photograph.		(74	461	358.1	+ 2.3	+25.1	
17 ⁴⁷⁷	112	716	72	459	358.2	+ 2.2	+38.7	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 110—continued.							
1874. ^a Aug. 18	No photograph.		(40	425	358.5	+ 1.7	+52.7)
19.543	6	309	8	391	358.8	+ 1.1	+66.6
20.563	0	87	0	347	1.6	+ 0.6	+82.9
Means ...	...	...	70	458	358.24	+ 2.03	...
Group 111. Three spots, one very large.							
Aug. 10.431	26	297	80	900	335.0	-18.6	-77.6
11.513	121	883	170	1244	332.7	-17.7	-65.6
12.439	147	1169	136	1082	333.7	-18.2	-52.3
13	No photograph.	(150	1116	333.5	-17.8	-39.0)	
14.501	269	1886	164	1150	333.2	-17.3	-25.6
15.432	218	1605	124	912	332.9	-17.9	-13.6
16	No photograph.	(126	799	332.9	-17.9	-0.1)	
17.477	224	1206	127	685	332.9	-17.8	+13.4
18	No photograph.	(105	588	333.1	-18.0	+27.3)	
19.543	112	663	83	491	333.3	-18.2	+41.1
20.563	92	743	86	694	331.4	-17.8	+52.7
21.536	40	211	58	306	331.7	-17.9	+65.9
22.475	0	24	0	79	331.4	-20.3	+78.0
Means ...	...	...	108	773	332.90	-18.11	...
Group 112. A few very small spots in a close cluster.							
Aug. 15.432	11	102	10	96	40.8	-14.2	+54.3
Means ...	...	...	10	96	40.8	-14.2	...
Group 114. A scattered group of small spots.							
Aug. 19.543	0	27	0	17	259.2	-12.8	-33.0
20.563	56	346	31	191	262.6	-11.5	-16.1
21.536	36	231	19	121	264.1	-10.1	-1.7
22.475	0	154	0	82	262.7	-10.0	+ 9.3
23	No photograph.	(0	81	262.9	-9.1	+22.9)	
24.502	0	123	0	80	263.0	-8.2	+36.4
25.452	0	29	0	22	260.8	-6.4	+46.7
Means ...	...	...	7	85	262.19	-9.73	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 115. Two spots close together.							
1874. ^a Aug. 19.543	39	230	45	268	231.4	-15.8	-60.8
20.563	57	400	47	328	230.7	-14.9	-48.0
21.536	74	397	49	261	231.3	-14.9	-34.5
22.475	80	462	47	272	231.3	-15.5	-22.1
23	No photograph.	(50	263	231.2	-15.3	-8.8)	
24.502	98	466	53	253	231.1	-15.1	+ 4.5
25.452	62	354	35	201	231.3	-15.1	+17.2
26.429	74	368	46	230	231.2	-15.2	+30.0
27.488	58	284	44	217	231.2	-15.0	+44.0
28.434	28	220	28	218	231.0	-14.6	+56.3
29.515	18	92	32	168	231.6	-15.3	+71.2
Means ...	...	...	43	244	231.21	-15.15	...
Group 116. One small spot.							
Aug. 19.543	0	45	0	78	219.1	+ 6.0	-73.1
20.563	0	28	0	27	219.2	+ 6.6	-59.5
21.536	35	108	25	78	219.6	+ 6.5	-46.2
22.475	33	75	20	45	219.6	+ 5.9	-33.8
Means ...	...	...	11	57	219.38	+ 6.25	...
Group 117. One small spot.							
Aug. 24.502	0	27	0	44	153.5	+11.1	-73.1
25.452	19	58	19	57	153.8	+10.8	-60.3
26.429	23	78	17	57	153.4	+10.4	-47.8
27.488	0	40	0	24	154.0	+11.3	-33.2
28.434	5	54	3	29	153.7	+11.2	-21.0
29.515	18	57	9	29	153.6	+11.6	-6.8
30	No photograph.	(5	19	153.8	+11.8	+ 6.4)	
31.483	0	15	0	8	153.9	+11.9	+19.5
Means ...	...	...	7	33	153.71	+11.26	...
Group 118. A scattered group of faint spots.							
Aug. 29.515	8	156	4	81	151.5	- 6.9	- 8.9
30	No photograph.	(2	73	152.2	- 7.4	+ 4.8)	
31.483	0	118	0	65	152.8	- 7.8	+18.4
Sept. 1.456	15	152	9	93	154.0	- 7.8	+32.4
2.418	19	173	14	127	153.9	- 7.1	+45.1

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 118—continued.									Group 121. A group of small spots forming a circle.								
1874. ^a Sept. 3	No photograph.	(30	243	153.6	— 7.7	+59.0)			1874. ^a Sept. 9.609	11	84	7	52	43.5	—14.7	+29.6	
4.570	24	193	45	153.2	— 8.3	+72.8			10.439	11	120	8	85	43.3	—13.7	+40.4	
5.403	15	83	56	151.0	— 6.9	+81.6			11	No photograph.	(20	237	43.1	—13.8	+53.4)		
									12.434	24	275	33	388	42.9	—13.9	+66.3	
Means ...	...	...	20	170	152.78	— 7.49	...		Means ...	...	...	17	191	43.20	—14.03	...
Group 119. One spot.									Group 122. One small regular spot.								
Sept. 4.570	o	29	o	69	2.4	+ 2.6	—78.0		Sept. 15.467	o	35	o	48	230.4	—13.3	—66.1	
5.403	o	26	o	33	2.5	+ 1.1	—66.9		16	No photograph.	(o	39	230.2	—13.2	—53.2)		
6	No photograph.	(o	33	2.7	+ 1.3	—52.8)			17	No photograph.	(o	31	230.0	—13.1	—40.3)		
7	No photograph.	(o	34	2.9	+ 1.4	—38.7)			18	No photograph.	(o	22	229.8	—13.0	—27.4)		
8	No photograph.	(o	34	3.2	+ 1.6	—24.6)			19.450	o	25	o	14	229.6	—12.9	—14.4	
9.609	o	66	o	34	3.4	+ 1.7	—10.5		20	No photograph.	(o	14	229.7	—12.9	— 1.2)		
Means ...	...	...	o	40	2.85	+ 1.62	...		21	No photograph.	(o	13	229.7	—12.9	+12.1)	
Group 119*. A long row of small spots.									22.452	o	22	o	13	229.8	—12.9	+25.4	
Sept. 12.434	39	187	27	129	20.5	+ 7.3	+43.9		Means ...	...	...	o	24	229.90	—13.03	...
13	No photograph.	(28	122	22.6	+ 7.1	+59.4)			Group 123. A small spot and a very small marking at a little distance.								
14.464	16	63	29	114	24.6	+ 7.0	+74.8		Sept. 22.452	30	120	16	65	187.1	+21.0	—17.3	
Means ...	...	...	28	122	22.57	+ 7.13	...		23	No photograph.	(14	58	187.6	+21.1	— 3.9)	
Group 120. One small spot.									24.414	21	97	11	51	188.1	+21.2	+ 9.6	
Sept. 9.609	o	26	o	29	77.0	+ 3.4	+63.1		25.425	20	77	11	43	188.3	+21.3	+23.2	
10.439	o	50	o	75	74.3	+ 5.1	+71.4		26.526	14	51	9	33	188.8	+21.1	+38.2	
Means ...	...	...	o	52	75.65	+ 4.25	...		27	No photograph.	(5	26	188.8	+20.7	+51.3)	
Group 124. One large regular spot.									28.509	o	16	o	18	188.7	+20.3	+64.3	
Sept. 22.452	103	516	76	382	159.6	— 9.1	—44.8		Means ...	...	...	9	42	188.20	+20.96	...
23	No photograph.	(74	398	159.7	— 9.1	—31.8)			Group 125. One large regular spot.								
24.414	129	749	71	414	159.8	— 9.1	—18.7		Sept. 22.452	103	516	76	382	159.6	— 9.1	—44.8	
25.425	146	797	76	415	159.9	— 8.7	— 5.2		23	No photograph.	(74	398	159.7	— 9.1	—31.8)		
26.526	131	722	69	380	160.0	— 8.6	+ 9.4		24.414	129	749	71	414	159.8	— 9.1	—18.7	
27	No photograph.	(68	382	160.2	— 8.5	+22.7)			25.425	146	797	76	415	159.9	— 8.7	— 5.2	
28.509	105	597	67	383	160.3	— 8.3	+35.9		26.526	131	722	69	380	160.0	— 8.6	+ 9.4	
29.516	71	436	56	341	160.1	— 8.2	+49.0		27	No photograph.	(68	382	160.2	— 8.5	+22.7)		
30.476	50	257	55	285	160.2	— 8.1	+61.7		28.509	105	597	67	383	160.3	— 8.3	+35.9	
Oct. 1.461	32	129	69	281	160.9	— 8.3	+75.4		29.516	71	436	56	341	160.1	— 8.2	+49.0	
Means ...	...	...	68	366	160.07	— 8.60	...		30.476	50	257	55	285	160.2	— 8.1	+61.7

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.					
Group 125. One small regular spot.									Group 129. Three spots arranged in a line.								
1874. _a Sept. 25 ^h 42 ^m 5		0	21	0	52	86 ^o 7	+ 3 ^o 6	-78 ^o 4	1874. _a Oct. 10 ^h 40 ^m 9		86	426	47	234	334 ^o 7	-16 ^o 7	+ 7 ^o 3
26 ^h 52 ^m 6		14	50	16	55	87 ^o 2	+ 4 ^o 3	-63 ^o 4	11		No photograph.	(44)	204	335 ^o 1	-16 ^o 6	+21 ^o 3	
27		No photograph.		(8)	36	87 ^o 3	+ 4 ^o 1	-50 ^o 2	12		No photograph.		(41)	175	335 ^o 5	-16 ^o 5	+35 ^o 2
28 ^h 50 ^m 9		0	26	0	16	87 ^o 4	+ 3 ^o 8	-37 ^o 0	13 ^h 49 ^m 1		45	173	38	145	336 ^o 0	-16 ^o 3	+49 ^o 2
29 ^h 51 ^m 6		0	27	0	15	87 ^o 6	+ 3 ^o 7	-23 ^o 5	14		No photograph.		(19)	111	336 ^o 8	-16 ^o 4	+63 ^o 6
30 ^h 47 ^m 6		0	20	0	10	88 ^o 0	+ 3 ^o 3	-10 ^o 5	15 ^h 53 ^m 8		0	26	0	77	337 ^o 7	-16 ^o 4	+77 ^o 9
Means ...		...	...	4	31	87 ^o 37	+ 3 ^o 80	...	Means ...		...	...	32	158	335 ^o 97	-16 ^o 48	...
Group 126. One small spot and two very small specks near.									Group 130. Two small spots. The smaller of these grows gradually fainter, and disappears on October 20.								
Sept. 29 ^h 51 ^m 6		12	71	10	59	60 ^o 8	-10 ^o 5	-50 ^o 3	Oct. 15 ^h 53 ^m 8		17	109	11	71	219 ^o 7	+ 9 ^o 4	-40 ^o 1
30 ^h 47 ^m 6		23	106	15	70	61 ^o 9	-11 ^o 5	-36 ^o 6	16		No photograph.		(8)	60	219 ^o 7	+ 9 ^o 3	-26 ^o 9
Oct. 1 ^h 46 ^m 1		16	66	9	38	62 ^o 1	-11 ^o 7	-23 ^o 4	17		No photograph.		(5)	49	219 ^o 7	+ 9 ^o 1	-13 ^o 7
2		No photograph.		(5)	33	61 ^o 2	-11 ^o 8	-11 ^o 2	18		No photograph.		(3)	37	219 ^o 7	+ 8 ^o 9	-0 ^o 5
3 ^h 45 ^m 4		2	53	1	28	60 ^o 3	-11 ^o 8	+ 1 ^o 1	19 ^h 53 ^m 8		0	50	0	26	219 ^o 7	+ 8 ^o 7	+12 ^o 7
Means ...		...	...	8	46	61 ^o 26	-11 ^o 46	...	20 ^h 50 ^m 3		24	95	13	52	217 ^o 3	+ 9 ^o 0	+23 ^o 0
									21		No photograph.		(7)	34	217 ^o 3	+ 8 ^o 6	+36 ^o 5
									22 ^h 55 ^m 1		0	21	0	16	217 ^o 3	+ 8 ^o 2	+50 ^o 0
Means ...		...	...	...	...	...	...	...	Means ...		...	...	6	43	218 ^o 80	+ 8 ^o 90	...
Group 127. A close cluster composed of many spots.									Group 131. Single spot.								
Sept. 28 ^h 50 ^m 9		58	391	148	1002	47 ^o 6	-13 ^o 3	-76 ^o 8	Oct. 15 ^h 53 ^m 8		35	106	57	171	187 ^o 1	+ 9 ^o 4	-72 ^o 7
29 ^h 51 ^m 6		75	993	105	1399	44 ^o 3	-13 ^o 1	-66 ^o 8	16		No photograph.		(47)	158	187 ^o 4	+ 9 ^o 2	-59 ^o 2
30 ^h 47 ^m 6		93	929	87	868	44 ^o 1	-13 ^o 6	-54 ^o 4	17		No photograph.		(38)	146	187 ^o 7	+ 9 ^o 0	-45 ^o 7
Oct. 1 ^h 46 ^m 1		221	1600	159	1151	44 ^o 0	-13 ^o 6	-41 ^o 5	18		No photograph.		(29)	134	188 ^o 0	+ 8 ^o 8	-32 ^o 2
2		No photograph.		(177)	1288	43 ^o 9	-13 ^o 5	-28 ^o 5	19 ^h 53 ^m 8		38	231	20	122	188 ^o 3	+ 8 ^o 6	-18 ^o 7
3 ^h 45 ^m 4		351	2567	195	1426	43 ^o 7	-13 ^o 3	-15 ^o 5	20 ^h 50 ^m 3		22	158	11	80	188 ^o 7	+ 8 ^o 6	-5 ^o 6
4		No photograph.		(177)	1235	44 ^o 3	-13 ^o 3	-1 ^o 6	21		No photograph.		(13)	65	189 ^o 1	+ 8 ^o 6	+ 8 ^o 3
5 ^h 47 ^m 7		291	1921	158	1044	44 ^o 9	-13 ^o 2	+12 ^o 4	22 ^h 55 ^m 1		28	92	15	50	189 ^o 5	+ 8 ^o 5	+22 ^o 2
6		No photograph.		(138)	941	44 ^o 5	-13 ^o 0	+25 ^o 3	23 ^h 51 ^m 4		0	44	0	27	189 ^o 9	+ 8 ^o 1	+35 ^o 3
7		No photograph.		(118)	838	44 ^o 0	-12 ^o 7	+38 ^o 2	Means ...		...	...	26	106	188 ^o 41	+ 8 ^o 76	...
8 ^h 50 ^m 8		115	859	98	734	43 ^o 6	-12 ^o 4	+51 ^o 1									
9		No photograph.		(72)	535	42 ^o 8	-12 ^o 0	+62 ^o 9									
10 ^h 40 ^m 9		21	157	45	335	42 ^o 0	-11 ^o 7	+74 ^o 6									
Means ...		...	...	129	984	44 ^o 13	-12 ^o 98	...									
Group 128. At first, one very small spot, but on October 10 it has extended into a row of several small fragments.									Group 132. Single spot.								
Oct. 8 ^h 50 ^m 8		0	27	0	15	18 ^o 2	+11 ^o 6	+25 ^o 7	Oct. 19 ^h 53 ^m 8		29	181	22	135	161 ^o 0	- 7 ^o 7	-46 ^o 0
9		No photograph.		(4)	59	18 ^o 1	+12 ^o 3	+38 ^o 2	20 ^h 50 ^m 3		36	130	22	79	161 ^o 4	- 7 ^o 5	-32 ^o 9
10 ^h 40 ^m 9		10	132	8	103	18 ^o 0	+12 ^o 9	+50 ^o 6	21		No photograph.		(23)	101	161 ^o 3	- 7 ^o 6	-19 ^o 5
									22 ^h 55 ^m 1		44	235	23	122	161 ^o 2	- 7 ^o 7	- 6 ^o 1
									23 ^h 51 ^m 4		48	174	25	90	161 ^o 2	- 8 ^o 3	+ 6 ^o 6
Means ...		...	...	4	59	18 ^o 10	+12 ^o 27	...	Means ...		...	...	23	105	161 ^o 22	- 7 ^o 76	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 133.							
Single spot.							
1874. ^a Oct. 22.551	0	25	0	21	118.3	-16.2	-49.0
Means ...	...	...	0	21	118.3	-16.2	...
Group 134.							
Two rather large spots. The first and larger spot throws off several fragments on November 7.							
Nov. 3.552	126	687	82	446	334.6	-16.2	-34.4
4.488	164	896	95	518	334.4	-16.2	-22.3
5.493	167	899	90	486	334.2	-16.4	-9.2
6.575	118	856	63	458	333.5	-16.6	+4.3
7.469	168	997	94	557	334.6	-15.7	+17.2
8	No photograph.	(125	689	334.1	-15.2	+30.7)	
9.582	212	1115	156	820	333.7	-14.7	+44.2
10	No photograph.	(87	636	334.1	-14.1	+57.0)	
11.471	12	289	18	451	334.4	-13.5	+69.8
12.426	0	43	0	124	330.4	-16.0	+78.4
Means ...	...	...	81	519	333.80	-15.46	...
Group 135.							
One spot. A second small spot appears on the second photograph on November 12. The group entirely changes its character on the following days, and on November 16 has changed into a very long irregular line of small spots. On November 23 the greater portion of the group has disappeared round the limb. The area only of the group, not its position, was measured on November 17.							
Nov. 12.426	0	50	0	87	178.3	+6.2	-73.7
13.472	37	158	35	149	180.1	+6.8	-58.3
14	No photograph.	(46	222	181.0	+7.1	-44.0)	
15	No photograph.	(57	295	182.0	+7.3	-29.6)	
16.512	131	707	68	368	182.9	+7.6	-15.3
17.574	109	466	55	234	(183.8	+7.6	-1.3)
18	No photograph.	(66	335	184.6	+7.5	+12.7)	
19	No photograph.	(77	436	185.5	+7.4	+26.7)	
20.492	133	811	88	537	186.3	+7.4	+40.6
21	No photograph.	(65	467	187.1	+7.3	+54.5)	
22	No photograph.	(42	397	187.9	+7.2	+68.3)	
23.459	5	91	19	326	188.7	+7.1	+82.1
Means ...	...	...	52	321	184.02	+7.21	...
Group 136.							
One spot. On November 23 several very small markings appear close behind it. These disappear again on November 27.							
1874. ^a Nov. 20.492	14	68	25	119	72.2	+4.4	-73.5
21	No photograph.	(24	114	72.8	+4.1	-59.8)	
22	No photograph.	(22	108	73.5	+3.8	-46.1)	
23.459	34	171	20	102	74.1	+3.5	-32.5
24.515	25	131	13	69	74.8	+3.4	-17.9
25	No photograph.	(9	53	75.0	+3.2	-4.4)	
26	No photograph.	(6	37	75.3	+2.9	+9.1)	
27.514	4	39	2	21	75.6	+2.7	+22.5
Means ...	...	...	15	78	74.16	+3.50	...
Group 137.							
The spot is seen as a notch in the limb on November 20.							
Nov. 20.492	0	40	0	247	60.2	+15.6	-85.5
21	No photograph.	(14	259	59.9	+15.4	-72.8)	
22	No photograph.	(28	272	59.5	+15.2	-60.1)	
23.459	54	375	41	284	59.2	+15.1	-47.4
24.515	39	407	24	251	58.9	+14.6	-33.8
25	No photograph.	(28	236	58.6	+14.6	-20.8)	
26	No photograph.	(33	220	58.4	+14.6	-7.8)	
27.514	71	396	37	205	58.2	+14.6	+5.1
Means ...	...	...	26	247	59.11	+14.96	...
Group 138.							
A line of very small spots.							
Dec. 7.704	28	219	14	111	290.2	-5.0	+7.9
8	No photograph.	(7	83	292.4	-5.0	+25.0)	
9.289	0	80	0	54	294.5	-4.9	+42.0
10	No photograph.	(0	45	292.3	-5.3	+51.4)	
11.477	0	35	0	36	290.0	-5.7	+60.8
Means ...	...	...	4	66	291.88	-5.18	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 138*.							
A few small spots in a straight stream.							
1874. ^a Dec. 9 ^h 7 ^m 04	o	115	o	64	274°7'	-12°0'	+22°2'
Means ...	...	...	o	64	274°7'	-12°0'	...
Group 139.							
A group of very small spots.							
Dec. 11 ^h 47 ^m 7	o	34	o	18	240°6'	+12°3'	+11°4'
Means ...	...	...	o	18	240°6'	+12°3'	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 140.							
A very scattered group composed at first of four spots, <i>a</i> , <i>b</i> , <i>c</i> , and <i>d</i> . Spot <i>a</i> breaks up on December 14 into several little spots, and two fresh spots appear, <i>e</i> and <i>f</i> . Spot <i>d</i> disappears on December 14, and spot <i>b</i> on December 18.							
1874. ^a Dec. 9 ^h 7 ^m 04	5	121	5	162	184°8'	+6°0'	-67°7'
10	No photograph.	(32	197	184°6'	+5°5'	-56°3'	
11 ^h 47 ^m 7	83	325	59	232	184°3'	+5°0'	-44°9'
12 ^h 74 ^m 2	92	823	52	462	187°0'	+6°3'	-25°4'
13	No photograph.	(48	366	185°7'	+6°7'	-15°2'	
14 ^h 49 ^m 8	84	527	43	269	184°3'	+7°0'	-5°0'
15	No photograph.	(34	245	185°3'	+7°0'	+9°6'	
16	No photograph.	(24	221	186°4'	+7°0'	+24°2'	
17 ^h 58 ^m 3	22	302	14	197	187°4'	+7°0'	+38°7'
18 ^h 51 ^m 3	o	154	o	126	187°8'	+7°3'	+51°3'
Means ...	...	...	31	248	185°76'	+6°48'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 141. Single spot.							
1875. ^a Jan. 2 ^h 52 ^m 7 ^s	53	355	32	215	331.9	-13.6	+33.2
3	No photograph.		(32)	190	331.7	-13.7	+46.2
4	No photograph.		(31)	165	331.5	-13.7	+59.3
5 ^h 55 ^m 0 ^s	19	87	31	140	331.3	-13.8	+72.4
Means ...	...	...	32	178	331.60	-13.70	...
Group 142. A group of two or three very small spots.							
Jan. 16 ^h 54 ^m 3 ^s	10	70	6	42	81.2	-8.9	-33.1
Means ...	...	...	6	42	81.2	-8.9	...
Group 142*. Two large spots close together, and a few small markings round them.							
Jan. 22 ^h 53 ^m 0 ^s	186	872	119	559	72.4	+6.2	+37.1
23	No photograph.		(79)	391	71.8	+6.0	+49.7
24	No photograph.		(40)	224	71.2	+5.8	+62.4
25 ^h 55 ^m 4 ^s	0	28	0	57	70.5	+5.5	+75.0
Means ...	...	...	60	308	71.48	+5.88	...
Group 143. A small spot, surrounded by a few very small and scattered markings. It becomes slightly more condensed on January 25.							
Jan. 22 ^h 53 ^m 0 ^s	32	151	17	79	36.6	+11.2	+1.3
23	No photograph.		(12)	65	36.8	+11.1	+14.8
24	No photograph.		(6)	52	37.0	+11.1	+28.3
25 ^h 55 ^m 4 ^s	0	55	0	39	37.3	+11.0	+41.8
Means ...	...	...	9	59	36.93	+11.10	...
Group 143*. A small spot.							
Jan. 26 ^h 73 ^m 4 ^s	0	27	0	27	36.1	+17.5	+56.2
Means ...	...	...	0	27	36.1	+17.5	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 144. A number of spots in an irregular stream.							
1875. ^a Feb. 1 ^h 77 ^m 3 ^s	0	122	0	150	197.9	+18.0	-62.6
2	No photograph.	(6)	130	198.0	+18.3	-50.6	
3	No photograph.	(12)	110	198.2	+18.6	-38.5	
4 ^h 48 ^m 5 ^s	28	147	17	91	198.3	+18.8	-26.5
5 ^h 65 ^m 7 ^s	21	225	12	127	197.9	+18.7	-11.4
6 ^h 77 ^m 4 ^s	38	170	21	95	197.9	+18.8	+3.4
7 ^h 21 ^m 5 ^s	36	215	20	121	197.7	+19.1	+8.9
8 ^h 69 ^m 9 ^s	13	93	8	59	198.4	+18.2	+29.2
9 ^h 22 ^m 9 ^s	13	80	9	55	197.4	+18.8	+35.2
Means ...	...	...	12	104	197.97	+18.59	...
Group 144*. A regular spot.							
Feb. 9 ^h 22 ^m 9 ^s	10	39	23	90	84.3	+5.9	-77.9
10 ^h 68 ^m 7 ^s	0	40	0	40	84.1	+5.5	-59.0
11 ^h 20 ^m 5 ^s	15	47	12	39	84.7	+5.0	-51.5
Means ...	...	...	12	56	84.37	+5.47	...
Group 144†. A small spot.							
Feb. 14 ^h 01 ^m 9 ^s	0	19	0	10	99.8	+12.7	+0.6
Means ...	...	...	0	10	99.8	+12.7	...
Group 145. A very large spot, with two or three small ones near it.							
Feb. 18 ^h 44 ^m 8 ^s	42	148	134	478	322.7	+17.9	-78.2
19	No photograph.	(130)	542	321.9	+18.2	-68.3	
20 ^h 07 ^m 5 ^s	114	551	125	606	321.1	+18.6	-58.4
21 ^h 51 ^m 7 ^s	230	993	168	725	320.4	+18.1	-40.1
22 ^h 52 ^m 7 ^s	235	1059	146	658	320.2	+18.2	-27.0
23 ^h 49 ^m 6 ^s	237	1181	136	679	320.0	+18.3	-14.4
24	No photograph.	(134)	688	320.0	+18.3	-1.0	
25 ^h 53 ^m 1 ^s	229	1218	131	696	320.0	+18.3	+12.4
26 ^h 55 ^m 8 ^s	235	1157	145	714	320.1	+18.1	+22.4
27 ^h 03 ^m 0 ^s	164	933	108	614	320.1	+17.8	+32.3
28 ^h 02 ^m 7 ^s	193	906	156	731	320.4	+18.2	+45.7
Mar. 1 ^h 07 ^m 7 ^s	108	576	123	654	320.4	+18.3	+59.5
2 ^h 20 ^m 9 ^s	47	273	109	634	320.1	+18.2	+74.2
Means ...	...	...	134	648	320.57	+18.19	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 146. One large spot, surrounded by many small ones.							
1875. _d Feb. 20 ⁰ 75	30	185	28	173	321 ²	-11 ⁶	-58 ³
21 ⁵ 17	97	601	62	383	321 ⁹	-11 ⁶	-38 ⁶
22 ⁵ 27	86	491	48	273	322 ⁰	-11 ²	-25 ²
23 ⁴ 96	122	696	63	359	321 ⁹	-10 ⁷	-12 ⁵
24	No photograph.		(58	287	321 ¹	-11 ²	+0 ¹
25 ⁵ 31	103	417	53	215	320 ³	-11 ⁶	+12 ⁷
26 ⁵ 58	29	261	16	144	(320 ⁷	-11 ⁵	+23 ⁰
27 ⁰ 30	30	199	18	119	321 ¹	-11 ⁴	+33 ³
28 ⁰ 27	21	158	15	114	321 ²	-11 ⁶	+46 ⁵
Mar. 1 ⁰ 77	16	78	16	76	321 ¹	-11 ⁹	+60 ²
2 ² 09	0	16	0	31	322 ²	-11 ⁷	+76 ³
Means ...	...	...	34	198	321 ³⁴	-11 ⁴⁵	...
Group 146*. A small spot following Group 145.							
Feb. 20 ⁰ 75	0	29	0	49	311 ¹	+20 ³	-68 ⁴
Means ...	...	...	0	49	311 ¹	+20 ³	...
Group 147. Two small spots. The preceding spot alone has appeared by February 22. The following and smaller spot decreases in size as the group crosses the disk, until on March 5 only the preceding spot is left.							
Feb. 22 ⁵ 27	0	56	0	166	267 ⁹	+5 ⁶	-79 ³
23 ⁴ 96	12	101	19	156	264 ⁶	+5 ⁷	-69 ⁸
24	No photograph.		(21	132	265 ⁸	+5 ³	-55 ³
25 ⁵ 31	33	160	22	108	266 ⁹	+4 ⁹	-40 ⁷
26 ⁵ 58	0	45	0	27	(267 ⁸	+4 ⁷	-29 ⁹
27 ⁰ 30	32	184	17	100	268 ⁷	+4 ⁵	-19 ¹
28 ⁰ 27	25	154	13	79	270 ⁵	+4 ²	-4 ²
Mar. 1 ⁰ 77	22	137	14	71	270 ¹	+4 ⁰	+9 ²
2 ² 09	20	117	11	66	270 ⁰	+3 ⁹	+24 ¹
3 ² 66	15	75	10	49	270 ⁴	+4 ²	+38 ⁴
4	No photograph.		(5	40	270 ⁹	+4 ⁰	+53 ³
5 ⁴ 46	0	22	0	31	271 ⁴	+3 ⁸	+68 ¹
Means ...	...	...	11	85	268 ⁷⁵	+4 ⁵⁷	...
Group 147*. A small spot following Group 146.							
Feb. 27 ⁰ 30	16	64	9	36	313 ⁸	-12 ¹	+26 ⁰
28 ⁰ 27	0	14	0	9	313 ⁹	-12 ¹	+39 ²
Means ...	...	...	5	23	313 ⁸⁵	-12 ¹⁰	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 147†. A number of small spots in an irregular stream.							
1875. _d Mar. 1 ⁰ 77	0	6	0	11	188 ⁵	+6 ⁴	-72 ⁴
2 ² 09	32	127	26	101	196 ⁷	+7 ⁴	-49 ²
3 ² 66	16	161	10	103	196 ¹	+7 ⁴	-35 ⁹
Means ...	...	...	12	72	193 ⁷⁷	+7 ⁰⁷	...
Group 148. Several small spots ranged in a straight line.							
Mar. 5 ⁴ 46	33	164	18	90	208 ²	+16 ⁴	+4 ⁹
6 ⁰ 70	34	299	19	168	207 ⁹	+16 ⁰	+12 ⁸
7 ⁰ 82	56	528	34	322	207 ⁷	+16 ¹	+26 ⁰
8 ⁸ 84	16	191	14	163	207 ³	+16 ³	+49 ³
9 ⁵ 47	46	256	51	281	208 ²	+16 ⁵	+58 ⁹
10 ⁵ 28	12	106	27	247	211 ²	+15 ⁴	+74 ⁸
Means ...	...	...	27	212	208 ⁴²	+16 ¹²	...
Group 149. One spot.							
Mar. 7 ⁰ 82	37	267	27	194	228 ⁷	-14 ⁸	+47 ⁰
8 ⁸ 84	0	101	0	136	227 ⁴	-16 ²	+69 ⁴
9 ⁵ 47	0	97	0	179	225 ¹	-17 ⁰	+75 ⁸
Means ...	...	...	9	170	227 ⁰⁷	-16 ⁰⁰	...
Group 149*. One spot regular in shape. It has divided into two parts by March 12, and is not seen on March 15.							
Mar. 10 ⁵ 28	15	135	20	182	67 ⁴	-6 ⁸	-69 ⁰
11 ⁵ 97	36	245	31	213	67 ¹	-7 ⁰	-55 ²
12 ⁶ 80	12	120	8	79	66 ⁷	-7 ⁸	-41 ³
13 ⁰ 60	26	176	16	108	67 ⁴	-7 ¹	-35 ⁶
14 ⁶ 44	0	27	0	14	66 ⁹	-7 ⁸	-15 ²
15 ⁵ 84	0	0	0	0	...	...	...
16 ¹ 27	0	20	0	10	66 ⁰	-9 ⁸	+3 ⁵
Means ...	...	...	11	87	66 ⁹²	-7 ⁷²	...
Group 149†. A small spot.							
Mar. 12 ⁶ 80	0	7	0	13	181 ⁹	+6 ⁸	+73 ⁹
Means ...	...	...	0	13	181 ⁹	+6 ⁸	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 150. Single spot.								Group 151. One large spot.							
1875. d					°	°	°	1875. d					°	°	°
Mar. 11.597	24	110	48	224	46.0	— 3.6	— 76.3	Mar. 17.760	14	132	55	529	320.8	+ 18.0	— 80.3
12.680	28	90	29	92	46.9	— 4.2	— 61.1	18.570	55	230	91	384	321.2	+ 17.5	— 69.2
13.060	31	202	28	180	46.8	— 3.8	— 56.2	19.691	53	381	50	363	321.9	+ 17.6	— 53.7
14.644	46	275	28	169	46.5	— 4.1	— 35.6	20.076	66	382	57	329	321.3	+ 18.0	— 49.2
15.584	46	304	25	166	46.8	— 3.9	— 22.9	21.207	92	536	62	362	321.2	+ 17.8	— 34.4
16.127	21	234	11	122	46.7	— 3.7	— 15.8	22.725	72	432	41	247	320.8	+ 17.9	— 14.7
17.760	22	89	11	45	47.3	— 3.5	+ 6.2	23.435	130	617	72	343	320.6	+ 18.1	— 5.6
18.570	11	50	6	26	47.1	— 3.5	+ 16.7	24.115	99	533	55	296	323.1	+ 17.5	+ 5.9
19.691	0	30	0	18	47.5	— 3.6	+ 31.9	25.448	111	546	66	325	320.6	+ 18.5	+ 20.9
20.076	3	27	2	17	47.0	— 3.3	+ 36.5	26.608	87	468	60	323	320.1	+ 18.6	+ 35.7
21.207	0	17	0	14	47.5	— 3.5	+ 51.9	27.428	50	351	41	288	320.0	+ 18.8	+ 46.5
Means ...	...	...	17	98	46.92	— 3.70	...	28.530	48	281	57	330	319.4	+ 19.1	+ 60.4
								29.713	11	87	27	224	319.1	+ 18.7	+ 75.7
								Means ...	...	...	56	334	320.78	+ 18.16	...
Group 150*. Some small spots forming s.p., Group 150.								Group 152. A number of small spots.							
Mar. 17.760	18	133	9	69	55.1	— 10.0	+ 14.0	Mar. 28.530	0	70	0	36	250.6	+ 3.2	— 8.4
18.570	38	155	21	85	54.6	— 9.4	+ 24.2	29.713	56	384	29	198	250.9	+ 4.1	+ 7.5
19.691	0	59	0	38	55.1	— 9.7	+ 39.5	30.703	79	401	43	221	252.2	+ 4.5	+ 21.8
20.076	6	51	4	37	57.1	— 9.4	+ 46.6	31.752	56	372	36	238	253.2	+ 4.4	+ 36.7
21.207	0	22	0	19	51.3	— 10.3	+ 55.7								
Means ...	...	...	7	50	54.64	— 9.76	...	Apr. 1.587	0	219	0	167	253.3	+ 4.2	+ 47.9
								2.460	27	117	28	122	254.4	+ 4.5	+ 60.4
								Means ...	...	...	23	164	252.43	+ 4.15	...
Group 150†. A small spot, not seen on March 18; probably hidden by the wire.								Group 152*. A number of small spots in a straight line.							
Mar. 17.760	8	53	4	27	30.1	— 6.5	— 11.0	Mar. 29.713	8	102	6	71	199.4	— 16.7	— 44.0
18.570	0	0	0	0	...	...	...	30.703	38	162	23	95	200.0	— 16.5	— 30.4
19.691	0	38	0	20	31.5	— 7.0	+ 15.9	31.752	64	195	34	103	201.3	— 16.1	— 15.2
20.076	0	34	0	18	31.2	— 7.1	+ 20.7								
Means ...	...	...	1	16	30.93	— 6.87	...	Apr. 1.587	17	292	9	150	200.0	— 16.2	— 5.4
								2.460	64	378	33	194	202.1	— 15.4	+ 8.1
								3	No photograph.	(17	125	202.8	— 15.5	+ 22.7)	
								4.567	0	87	0	55	203.5	— 15.5	+ 37.3
								Means ...	...	...	17	113	201.30	— 15.99	...
Group 151*. Two large spots.								Group 153. One very small spot.							
Mar. 20.076	0	138	0	70	5.3	— 13.7	— 5.2	Apr. 4.567	0	12	0	11	109.3	— 13.5	— 56.9
21.207	16	209	8	107	5.9	— 13.7	+ 10.3								
22.725	0	188	0	113	8.9	— 15.0	+ 33.4								
23.435	162	670	111	459	9.6	— 14.1	+ 43.4								
24.115	106	856	87	702	9.9	— 14.3	+ 52.3								
25.448	75	363	102	491	8.9	— 14.6	+ 69.2								
26.608	0	73	0	215	5.9	— 13.9	+ 81.5								
Means ...	...	...	44	308	7.77	— 14.19	...	Means ...	...	...	0	11	109.3	— 13.5	...

Areas and Heliographic Positions of Groups of Sun Spots —continued.

Areas and Heliographic Positions of Groups of Sun Spots —continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 153*. One very small spot.								Group 155—continued.							
1875. ^a Apr. 5 ^h 50 ^m 7 ^s	0	31	0	16	148 ^o 4	+ 8 ^o 0	— 5 ^o 3	1875. ^d Apr. 18 ^h 51 ^m 7 ^s	111	508	64	292	10 ^o 4	— 13 ^o 6	+ 28 ^o 4
6 ^h 42 ^m 7 ^s	4	98	2	51	147 ^o 8	+ 7 ^o 8	+ 6 ^o 2	19 ^h 44 ^m 4 ^s	58	383	38	252	10 ^o 0	— 13 ^o 5	+ 40 ^o 2
7 ^h 66 ^m 7 ^s	5	105	3	59	148 ^o 6	+ 7 ^o 4	+ 23 ^o 3	20 ^h 58 ^m 1 ^s	54	279	47	243	9 ^o 6	— 13 ^o 0	+ 54 ^o 9
8 ^h 52 ^m 2 ^s	0	27	0	17	147 ^o 8	+ 7 ^o 9	+ 33 ^o 8	21 ^h 69 ^m 9 ^s	0	167	0	246	10 ^o 7	— 13 ^o 5	+ 70 ^o 7
9 ^h 10 ^m 8 ^s	0	22	0	16	151 ^o 9	+ 7 ^o 5	+ 45 ^o 6	Means ...	...	...	58	361	10 ^o 30	— 13 ^o 80	...
Means ...	...	...	1	32	148 ^o 90	+ 7 ^o 72	...	Group 156. One small spot.							
Group 153†. Two very small spots.								Apr. 20 ^h 58 ^m 1 ^s	0	20	0	30	245 ^o 7	+ 12 ^o 3	— 69 ^o 0
Apr. 10 ^h 64 ^m 1 ^s	23	110	12	57	98 ^o 5	+ 4 ^o 0	+ 12 ^o 5	21 ^h 69 ^m 9 ^s	0	57	0	51	246 ^o 3	+ 12 ^o 3	— 53 ^o 7
11	No photograph.		(8	64	99 ^o 3	+ 4 ^o 6	+ 26 ^o 2	22 ^h 65 ^m 9 ^s	0	55	0	39	245 ^o 8	+ 12 ^o 3	— 41 ^o 5
12	No photograph.		(4	71	100 ^o 1	+ 5 ^o 2	+ 39 ^o 9	Means ...	...	...	0	40	245 ^o 93	+ 12 ^o 30	...
13 ^h 56 ^m 5 ^s	0	90	0	78	100 ^o 9	+ 5 ^o 7	+ 53 ^o 5	Group 156*. Two small spots very close together.							
14 ^h 53 ^m 1 ^s	0	65	0	79	99 ^o 8	+ 5 ^o 6	+ 65 ^o 2	Apr. 25 ^h 48 ^m 1 ^s	42	205	54	263	182 ^o 6	— 6 ^o 1	— 67 ^o 4
Means ...	...	...	5	70	99 ^o 72	+ 5 ^o 02	...	26 ^h 51 ^m 5 ^s	46	219	39	184	182 ^o 6	— 6 ^o 1	— 53 ^o 7
Group 154. Two small spots on April 10. One spot, regular in shape, on April 13. Has two companions on April 15; but on April 18 only the chief spot remains.								27 ^h 49 ^m 7 ^s	74	339	49	223	182 ^o 6	— 5 ^o 9	— 40 ^o 8
Apr. 10 ^h 64 ^m 1 ^s	0	44	0	49	24 ^o 4	+ 9 ^o 0	— 61 ^o 6	28 ^h 54 ^m 8 ^s	50	315	28	178	182 ^o 5	— 6 ^o 0	— 27 ^o 0
11	No photograph.		(8	66	26 ^o 4	+ 9 ^o 1	— 46 ^o 7	29 ^h 58 ^m 2 ^s	62	284	32	147	182 ^o 2	— 6 ^o 2	— 13 ^o 6
12	No photograph.		(16	83	28 ^o 5	+ 9 ^o 2	— 31 ^o 8	30 ^h 49 ^m 9 ^s	0	76	0	38	182 ^o 3	— 6 ^o 1	— 1 ^o 4
13 ^h 56 ^m 5 ^s	44	184	24	100	30 ^o 5	+ 9 ^o 3	— 16 ^o 9	May 1 ^h 12 ^m 9 ^s	30	176	15	89	181 ^o 4	— 6 ^o 4	+ 6 ^o 1
14 ^h 53 ^m 1 ^s	61	202	32	105	31 ^o 3	+ 9 ^o 3	— 3 ^o 3	2	No photograph.	(17	84	181 ^o 6	— 6 ^o 5	+ 22 ^o 0	
15 ^h 67 ^m 1 ^s	36	221	19	117	31 ^o 8	+ 9 ^o 0	+ 12 ^o 2	3 ^h 49 ^m 9 ^s	30	125	19	79	181 ^o 8	— 6 ^o 6	+ 37 ^o 8
16 ^h 54 ^m 3 ^s	71	301	40	169	30 ^o 3	+ 9 ^o 2	+ 22 ^o 2	4 ^h 07 ^m 2 ^s	27	73	19	52	181 ^o 5	— 6 ^o 1	+ 45 ^o 0
17 ^h 47 ^m 0 ^s	35	234	22	148	30 ^o 7	+ 9 ^o 5	+ 34 ^o 9	5 ^h 48 ^m 2 ^s	0	23	0	26	181 ^o 7	— 6 ^o 8	+ 63 ^o 9
18 ^h 51 ^m 7 ^s	19	126	16	106	33 ^o 7	+ 8 ^o 8	+ 51 ^o 7	Means ...	...	...	25	124	182 ^o 07	— 6 ^o 25	...
19 ^h 44 ^m 4 ^s	11	63	13	76	33 ^o 8	+ 8 ^o 7	+ 64 ^o 0	Group 157. One large spot with several small ones following it.							
20 ^h 58 ^m 1 ^s	0	23	0	79	35 ^o 3	+ 8 ^o 3	+ 80 ^o 6	Apr. 26 ^h 51 ^m 5 ^s	0	237	0	552	160 ^o 0	+ 8 ^o 7	— 76 ^o 3
Means ...	...	...	17	100	30 ^o 61	+ 9 ^o 04	...	27 ^h 49 ^m 7 ^s	82	675	100	823	158 ^o 8	+ 8 ^o 9	— 64 ^o 6
Group 155. Two large spots very close together.								28 ^h 54 ^m 8 ^s	155	943	127	773	158 ^o 3	+ 9 ^o 2	— 51 ^o 2
Apr. 10 ^h 64 ^m 1 ^s	29	239	53	434	11 ^o 2	— 13 ^o 7	— 74 ^o 8	29 ^h 58 ^m 2 ^s	205	1511	133	981	158 ^o 5	+ 9 ^o 6	— 37 ^o 3
11	No photograph.		(63	450	10 ^o 8	— 13 ^o 8	— 62 ^o 3	30 ^h 49 ^m 9 ^s	129	1345	74	773	158 ^o 1	+ 9 ^o 6	— 25 ^o 6
12	No photograph.		(72	466	10 ^o 4	— 14 ^o 0	— 49 ^o 8	May 1 ^h 12 ^m 9 ^s	192	1030	103	554	158 ^o 7	+ 9 ^o 5	— 16 ^o 6
13 ^h 56 ^m 5 ^s	130	762	82	482	10 ^o 0	— 14 ^o 1	— 37 ^o 4	2	No photograph.	(101	623	159 ^o 1	+ 9 ^o 4	— 0 ^o 5	
14 ^h 53 ^m 1 ^s	143	768	80	429	9 ^o 8	— 13 ^o 9	— 24 ^o 8	3 ^h 49 ^m 9 ^s	185	1292	99	691	159 ^o 5	+ 9 ^o 3	+ 15 ^o 5
15 ^h 67 ^m 1 ^s	114	718	59	370	10 ^o 2	— 14 ^o 3	— 9 ^o 4	4 ^h 07 ^m 2 ^s	113	1010	63	564	159 ^o 1	+ 9 ^o 3	+ 22 ^o 6
16 ^h 54 ^m 3 ^s	148	662	75	336	10 ^o 4	— 14 ^o 3	+ 2 ^o 3	5 ^h 48 ^m 2 ^s	128	850	89	590	159 ^o 8	+ 9 ^o 1	+ 42 ^o 0
17 ^h 47 ^m 0 ^s	127	634	66	330	10 ^o 1	— 13 ^o 9	+ 14 ^o 3	6 ^h 50 ^m 4 ^s	97	433	89	397	160 ^o 1	+ 9 ^o 0	+ 55 ^o 8
								7 ^h 77 ^m 2 ^s	44	204	76	351	159 ^o 8	+ 8 ^o 7	+ 72 ^o 3
								Means ...	...	...	88	639	159 ^o 15	+ 9 ^o 19	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 157*. A pair of spots following Group 157.							
1875. _a May 1 ¹²⁹	29	367	17	212	150°0	+11°6	-25°3
Means ...	...	...	17	212	150°0	+11°6	...
Group 157†. A small spot.							
May 22 ⁶⁶⁷	0	15	0	13	195°6	+8°6	-54°9
Means ...	...	...	0	13	195°6	+8°6	...
Group 158. Two small spots.							
May 24 ⁵³⁵	0	85	0	46	210°6	+15°5	-15°2
Means ...	...	...	0	46	210°6	+15°5	...
Group 159. One small spot.							
May 24 ⁵³⁵	0	32	0	35	163°0	+8°0	-62°8
25	No photograph.	(0	31	163°1	+8°1	-49°1)	
26°610	0	44	0	27	163°1	+8°2	-35°3
27°644	9	48	5	26	162°7	+8°1	-21°9
28°647	12	35	6	18	163°1	+8°5	-8°3
Means ...	...	...	2	27	163°00	+8°18	...
Group 160. Two spots. This group greatly increases in size on June 3 and following days.							
June 1 ⁵⁴²	3	80	3	79	60°6	-10°5	-59°3
2 ⁵²⁷	45	275	33	202	60°5	-10°1	-46°3
3 ⁶⁰²	97	828	58	496	60°8	-10°8	-31°8
4 ⁵³²	133	884	72	478	60°7	-10°7	-19°6
5 ⁶³⁴	189	1014	97	520	61°3	-10°1	-4°4
6	No photograph.	(84	514	61°4	-10°0	+8°5)	
7	No photograph.	(70	508	61°6	-9°8	+21°5)	
8°532	93	818	57	502	61°8	-9°7	+34°4
9	No photograph.	(59	468	61°9	-9°9	+48°0)	
10°564	56	407	60	433	62°0	-10°1	+61°5
11°560	46	242	87	457	61°5	-10°4	+74°2
Means ...	...	...	62	423	61°28	-10°19	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 161. Three or four small spots close together.							
1875. _a June 16 ⁵¹⁶	38	295	23	179	247°6	+6°2	-34°1
17°457	161	1008	87	545	247°4	+6°6	-21°8
18	No photograph.	(105	634	247°1	+6°6	-8°8)	
19°478	242	1430	122	722	246°8	+6°6	-4°3
20°644	182	980	98	527	247°9	+6°6	+20°9
21°678	96	614	58	371	247°1	+6°0	+33°8
22°497	102	625	72	440	247°0	+6°2	+44°5
23°530	108	350	103	333	247°3	+5°8	+58°5
24°483	5	107	7	157	246°4	+5°8	+70°2
Means ...	...	...	75	434	247°18	+6°27	...
Group 162. Single spot. Greatly increases in size, and breaks up into several spots on June 23.							
June 21°678	0	35	0	18	205°3	-7°4	-8°0
22°497	60	402	31	206	207°0	-8°4	+4°5
23°530	197	1036	105	551	205°6	-7°6	+16°8
24°483	313	1318	184	775	206°1	-7°7	+29°9
25°552	257	1216	181	856	205°7	-7°0	+43°7
26°519	132	884	123	826	206°2	-7°8	+56°8
27°531	72	415	106	611	205°3	-7°4	+69°4
Means ...	...	...	104	549	205°89	-7°61	...
Group 162*. A small spot.							
June 21°678	0	28	0	22	164°9	+17°2	-48°4
Means ...	...	...	0	22	164°9	+17°2	...
Group 163. One spot at first, which breaks up into two on July 3.							
June 27°531	16	95	28	170	63°1	-11°6	-72°8
28°611	20	163	20	163	62°5	-10°7	-59°1
29°501	24	148	18	111	63°1	-10°8	-46°7
30°081	24	195	16	130	62°7	-10°4	-39°3
July 1	No photograph.	(19	116	62°9	-10°0	-23°6)	
2°426	41	197	21	102	63°2	-9°6	-7°3
3°602	29	179	15	93	63°1	-9°6	+7°6
4	No photograph.	(14	67	63°0	-9°4	+19°6)	
5°393	22	66	13	40	62°9	-9°2	+31°6
6°429	12	52	9	38	62°9	-9°5	+44°9
Means ...	...	...	17	103	62°94	-10°08	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 163*. A small spot.							
June 30 ^o 081	o	11	o	11	42 ^o 9	+ 9 ^o 9	-59 ^o 1
Means ...	...	...	o	11	42 ^o 9	+ 9 ^o 9	...
Group 164. One small spot, regular in shape. It has broken up into several spots on July 2.							
1875. _d June 28 ^o 611	10	53	5	28	138 ^o 1	+10 ^o 5	+16 ^o 5
29 ^o 501	18	89	10	51	137 ^o 8	+ 9 ^o 8	+28 ^o 0
30 ^o 081	41	117	25	72	136 ^o 9	+10 ^o 6	+34 ^o 9
July 1	No photograph.	(22	106	137 ^o 7	+11 ^o 5	+51 ^o 2)	
2 ^o 426	14	107	18	139	138 ^o 5	+12 ^o 3	+67 ^o 5
Means ...	...	...	16	79	137 ^o 80	+10 ^o 94	...
Group 164*. Two spots.							
July 8 ^o 596	o	31	o	27	294 ^o 3	+15 ^o 2	-55 ^o 1
9 ^o 595	41	232	28	159	(294 ^o 1	+15 ^o 4	-42 ^o 4)
10 ^o 554	61	245	36	144	293 ^o 9	+15 ^o 6	-29 ^o 6
11	No photograph.	(27	115	293 ^o 0	+16 ^o 3	-17 ^o 1)	
12 ^o 585	33	166	17	86	292 ^o 1	+16 ^o 9	- 4 ^o 5
13 ^o 644	12	132	6	69	291 ^o 9	+16 ^o 7	+ 9 ^o 4
14 ^o 640	o	81	o	45	291 ^o 9	+16 ^o 6	+22 ^o 5
Means ...	...	...	16	92	293 ^o 03	+16 ^o 10	...
Group 164†. A short stream.							
July 17 ^o 598	o	54	o	30	253 ^o 2	+14 ^o 8	+22 ^o 9
Means ...	...	...	o	30	253 ^o 2	+14 ^o 8	...
Group 165. One small spot.							
July 24 ^o 489	o	20	o	12	107 ^o 5	+21 ^o 7	-31 ^o 6
25 ^o 445	o	39	o	22	106 ^o 3	+22 ^o 2	-20 ^o 2
Means ...	...	...	o	17	106 ^o 90	+21 ^o 95	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 166. Several small spots close together. The group becomes more and more scattered up to August 2, when it has completely divided into two parts.							
1875. _d July 26 ^o 519	14	127	19	172	43 ^o 8	+ 7 ^o 9	-68 ^o 5
27 ^o 583	o	114	o	95	44 ^o 8	+ 7 ^o 9	-53 ^o 4
28 ^o 450	48	255	32	171	44 ^o 7	+ 8 ^o 8	-42 ^o 0
29 ^o 472	54	364	31	209	43 ^o 4	+ 8 ^o 0	-29 ^o 8
30 ^o 594	50	324	26	167	45 ^o 9	+ 8 ^o 4	-12 ^o 5
31 ^o 509	40	310	20	156	48 ^o 2	+ 9 ^o 1	+ 1 ^o 9
Aug. 1	No photograph.	(49	323	49 ^o 0	+ 8 ^o 7	+15 ^o 7)	
2 ^o 472	133	848	77	490	49 ^o 7	+ 8 ^o 2	+29 ^o 4
3 ^o 501	93	394	65	269	49 ^o 6	+ 8 ^o 0	+42 ^o 9
4	No photograph.	(51	235	50 ^o 0	+ 8 ^o 2	+56 ^o 4)	
5 ^o 492	32	140	37	200	50 ^o 3	+ 8 ^o 4	+69 ^o 9
Means ...	...	...	37	226	47 ^o 22	+ 8 ^o 33	...
Group 167. One spot.							
Aug. 20 ^o 715	o	50	o	102	62 ^o 3	+ 9 ^o 4	-76 ^o 8
21 ^o 461	17	91	22	115	62 ^o 1	+ 8 ^o 5	-67 ^o 2
22 ^o 639	33	103	26	82	62 ^o 0	+ 8 ^o 2	-51 ^o 7
23 ^o 505	20	77	13	50	62 ^o 2	+ 8 ^o 4	-40 ^o 1
24 ^o 682	o	58	o	32	62 ^o 4	+ 9 ^o 1	-24 ^o 3
25 ^o 755	o	55	o	28	62 ^o 6	+ 8 ^o 9	- 9 ^o 9
26 ^o 642	o	38	o	19	62 ^o 6	+ 9 ^o 0	+ 1 ^o 8
27 ^o 537	o	44	o	23	62 ^o 9	+ 9 ^o 1	+13 ^o 9
28 ^o 640	o	23	o	13	62 ^o 7	+ 8 ^o 9	+28 ^o 3
Means ...	...	...	7	52	62 ^o 42	+ 8 ^o 83	...
Group 168. One spot.							
Aug. 21 ^o 461	19	126	59	382	48 ^o 3	+ 6 ^o 9	-81 ^o 0
22 ^o 639	40	240	50	300	46 ^o 7	+ 6 ^o 3	-67 ^o 0
23 ^o 505	72	293	62	253	47 ^o 1	+ 6 ^o 8	-55 ^o 2
24 ^o 682	28	248	18	161	47 ^o 0	+ 7 ^o 5	-39 ^o 7
25 ^o 755	36	233	20	129	47 ^o 4	+ 7 ^o 4	-25 ^o 1
26 ^o 642	35	167	18	86	47 ^o 6	+ 7 ^o 3	-13 ^o 2
27 ^o 537	54	256	27	128	47 ^o 7	+ 6 ^o 9	- 1 ^o 3
28 ^o 640	39	177	20	91	48 ^o 1	+ 7 ^o 5	+13 ^o 7
29 ^o 480	60	233	33	128	47 ^o 6	+ 7 ^o 3	+24 ^o 3
30 ^o 438	37	197	23	123	48 ^o 1	+ 8 ^o 1	+37 ^o 4
31 ^o 440	15	97	12	75	47 ^o 7	+ 7 ^o 9	+50 ^o 3
Means ...	...	...	31	169	47 ^o 57	+ 7 ^o 26	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 169. One small spot.								Group 174. One small spot. The photograph on October 1 is too dense for the group to be seen.							
1875. d Aug. 30.438	o	11	o	14	306.0	-10.3	-64.7	1875. d Sept. 29.467 30.471	o	46	o	28	1.3	-15.2	+27.1
Means ...	...	...	o	14	306.0	-10.3	...	o	19	o	14	3.8	-15.8	+42.8	...
Group 170. Two small spots.								Oct. 1.065 2.423	o	o	o	o	...	...	...
								o	12	o	20	4.9	-14.9	+69.7	...
								Means ...	...	...	o	16	3.33	-15.30	...
Group 171. Three or four very small spots.								Group 175. Two spots.							
Sept. 9.414 10 11.670	o No photograph. o	28 59	o (o o	17 25 33	214.6 215.5 216.3	-17.3 -16.8 -16.2	-24.3 -8.6 +7.2	Oct. 2.423 3 4.715 5.566 6.423 7.439	52 30 36 14 o	319 226 112 74 13	27 (23 19 27 14 o	166 155 143 85 73 20	299.9 299.9 299.8 300.7 300.3 299.6	-8.2 -8.3 -8.3 -7.0 -7.4 -7.6	+4.7 +19.8 +34.8 +46.9 +57.8 +70.5
Means ...	...	...	o	25	215.47	-16.77	...	Means ...	...	...	18	107	300.03	-7.80	...
Group 172. Two very small spots.								Group 176. Two small spots close together.							
Sept. 14.490 15.478 16.426	20 5 o	92 77 58	38 5 o	173 76 43	96.0 98.3 98.5	+14.8 +15.2 +15.1	-75.9 -60.5 -47.8	Oct. 5.566 6.423	o o	21 11	o o	16 11	302.1 302.1	+15.6 +15.3	+48.3 +59.6
Means ...	...	...	14	97	97.60	+15.03	...	Means ...	...	...	o	14	302.10	+15.45	...
Group 173. One spot surrounded by several very much smaller ones.								Group 177. A scattered cluster of very small spots.							
Sept. 15.478	o	21	o	11	141.7	+6.0	-17.1	Oct. 5.566 6.423 7.439 8.705 9.415	o o 47 o o	50 20 170 50 11	o o 34 o o	27 12 122 58 20	275.2 277.8 275.2 277.5 278.1	+12.4 +11.6 +12.4 +11.2 +11.6	+21.4 +35.3 +46.1 +65.2 +75.1
Means ...	...	...	o	11	141.7	+6.0	...	Means ...	...	...	7	48	276.76	+11.84	...
Group 178. Two very small spots. On October 10 one of the two spots has disappeared.								Oct. 9.415 10.457	o 11	23 57	o 6	12 32	215.2 214.5	0.0 +0.6	+12.2 +25.3
								Means ...	...	...	3	22	214.85	+0.30	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 178*. A short stream.							
1875. _a Oct. 18.213	0	37	0	39	146.5	-11.6	+59.5
Means ...	...	...	0	39	146.5	-11.6	...
Group 179. A small spot.							
Oct. 21.402	0	43	0	22	37.6	+11.2	-7.3
Means ...	...	...	0	22	37.6	+11.2	...
Group 180. One large spot.							
Oct. 25.476	75	419	90	505	285.3	+10.8	-65.9
26.415	61	376	52	319	284.9	+11.0	-53.9
27.112	89	592	62	414	285.0	+10.4	-44.5
28.066	97	563	58	335	284.7	+10.7	-32.3
29.042	85	831	45	442	285.1	+11.2	-19.0
30	No photograph.		(52	424	285.0	+11.3	-3.1)
31	No photograph.		(59	405	285.0	+11.5	+12.8)
Nov. 1.665	113	672	65	386	284.9	+11.6	+28.6
2.386	130	479	83	305	284.8	+10.7	+38.0
3.753	57	388	50	343	284.5	+10.9	+55.7
Means ...	...	...	62	388	284.92	+11.01	...
Group 180*. A regular spot with a small companion on October 28.							
Oct. 27.112	8	29	5	18	4.4	+13.8	+34.9
28.066	12	61	9	46	5.1	+14.2	+48.1
29.042	0	32	0	33	5.9	+14.2	+61.8
Means ...	...	...	5	32	5.13	+14.07	...
Group 181. One small spot.							
Nov. 15.415	0	7	0	9	142.0	+17.1	+66.9
Means ...	...	...	0	9	142.0	+17.1	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 182. A stream of spots.							
1875. _a Nov. 18.410	76	307	49	197	358.0	-7.7	-37.6
19.401	57	325	32	182	357.7	-7.2	-24.8
20.539	104	391	53	201	359.3	-7.0	-8.2
21	No photograph.		(46	184	359.5	-6.9	+4.5)
22.429	72	312	38	166	359.7	-6.7	+17.1
23.498	57	226	34	136	1.0	-6.9	+32.5
24	No photograph.		(32	143	2.6	-6.2	+47.7)
25.572	26	134	29	149	4.1	-5.4	+62.9
26.082	9	86	13	125	4.0	-4.9	+69.6
27.077	0	42	0	134	2.5	-4.7	+81.2
Means ...	...	...	33	162	0.84	-6.36	...
Group 183. Cluster of two or three small spots.							
Nov. 19.401	10	51	7	36	338.3	+10.7	-44.2
20.539	23	110	13	63	339.7	+10.4	-27.8
21	No photograph.		(9	41	339.7	+10.7	-15.4)
22.429	10	35	5	18	339.7	+10.9	-2.9
23.498	0	19	0	10	341.4	+10.1	+12.9
Means ...	...	...	7	34	339.76	+10.56	...
Group 183*. Four very small spots.							
Nov. 25.572	0	40	0	21	308.3	+15.0	+7.1
26.082	0	15	0	8	307.6	+14.5	+13.2
Means ...	...	...	0	15	307.95	+14.75	...
Group 184. Two large spots, with several very small ones between them. A somewhat scattered group. The group breaks up into two on November 23.							
Nov. 20.539	21	93	23	101	305.4	-8.2	-62.1
21	No photograph.		(43	184	306.1	-8.1	-49.0)
22.429	101	427	63	267	306.7	-7.9	-35.9
23.498	116	496	63	269	308.5	-8.0	-20.0
24	No photograph.		(52	254	308.9	-7.7	-6.0)
25.572	78	465	40	239	309.2	-7.3	+8.0
26.082	50	304	26	159	309.2	-7.2	+14.8
27.077	40	325	23	188	310.1	-6.6	+28.8
28	No photograph.		(29	219	310.4	-6.3	+42.4)
29.096	39	276	35	249	310.7	-6.0	+55.9
30.108	25	168	35	234	310.2	-5.8	+68.8
Means ...	...	...	39	215	308.67	-7.19	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 185. Single spot.							
1875. d					°	°	°
Nov. 20.539	0	21	0	81	284.7	+11.6	-82.8
21	No photograph.	(10	69	285.5	+11.7	-69.6)	
22.429	21	61	19	56	286.2	+11.8	-56.4
23.498	16	91	11	62	286.2	+11.5	-42.3
24	No photograph.	(13	51	286.2	+11.4	-28.7)	
25.572	29	76	15	40	286.1	+11.3	-15.1
26.082	8	74	4	38	285.8	+11.3	-8.6
27.077	0	16	0	8	285.6	+11.6	+4.3
Means ...	...	...	9	51	285.79	+11.53	...
Group 186. One small spot.							
Dec. 14.449	0	21	0	11	58.4	+16.2	+6.0
Means ...	...	...	0	11	58.4	+16.2	...
Group 187. One small spot.							
Dec. 14.449	0	14	0	10	8.3	-6.0	-44.1
Means ...	...	...	0	10	8.3	-6.0	...
Group 188. Group of three or four spots ranged in a line.							
Dec. 17.497	42	134	22	70	357.3	-7.1	-15.0
18.026	32	207	16	105	358.9	-6.8	-6.5
19	No photograph.	(8	88	359.0	-6.6	+7.4)	
Group 188—continued.							
1875. d					°	°	°
Dec. 20.108	0	131	0	71	359.0	-6.3	+21.2
21.081	0	38	0	23	359.8	-6.0	+34.8
22.063	0	17	0	12	357.8	-6.1	+45.7
23.550	0	22	0	27	358.6	-6.3	+66.1
Means ...	...	...	7	57	358.63	-6.46	...
Group 189. One large spot.							
Dec. 15.074	13	114	39	345	323.7	-12.9	-80.5
16.071	30	287	41	388	323.0	-12.7	-68.1
17.497	69	465	54	366	322.4	-11.4	-49.9
18.026	52	467	36	322	322.8	-12.3	-42.6
19	No photograph.	(26	200	322.9	-11.8	-28.7)	
20.108	31	340	16	178	323.0	-11.3	-14.8
21.081	49	341	25	174	322.3	-11.1	-2.7
22.063	56	297	29	154	323.2	-10.8	+11.1
23.550	52	277	30	161	322.3	-10.2	+29.8
24.540	26	119	18	84	323.7	-10.6	+44.2
Means ...	...	...	31	237	322.93	-11.51	...
Group 189*. A small spot.							
Dec. 30.087	3	34	3	33	265.2	-7.7	+58.7
Means ...	...	...	3	33	265.20	-7.70	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 190. Scattered group of very faint small spots.								Group 193. Scattered group of small spots.							
1876. _d Jan. 5 ^h 48 ^m 7 ^s	0	24	0	16	81°6'	— 5°1'	— 40°6'	1876. _d Jan. 20 ^h 7 ^m 11 ^s	0	156	0	138	225°8'	— 13°9'	— 55°9'
								21 ^h 7 ^m 23 ^s	0	66	0	45	225°8'	— 13°3'	— 42°5'
								22 ^h 47 ^m 2 ^s	0	20	0	12	226°6'	— 12°2'	— 31°9'
								23 ^h 52 ^m 1 ^s	0	25	0	13	226°9'	— 12°7'	— 17°8'
Means ...	...	...	0	16	81°6'	— 5°1'	...	Means ...	...	...	0	52	226°28'	— 13°03'	...
Group 190*. A short stream.								Group 194. Scattered group of small spots. A change of shape is seen on January 24.							
Jan. 11 ^h 07 ^m 2 ^s	6	59	3	31	59°2'	+ 10°1'	+ 10°6'	Jan. 21 ^h 7 ^m 23 ^s	10	115	5	59	274°2'	— 13°8'	+ 5°9'
12 ^h 05 ^m 2 ^s	0	42	0	24	60°5'	+ 10°4'	+ 24°8'	22 ^h 47 ^m 2 ^s	0	25	0	13	270°9'	— 15°3'	+ 12°4'
Means ...	...	...	2	28	59°85'	+ 10°25'	...	23 ^h 52 ^m 1 ^s	22	219	13	132	277°7'	— 14°6'	+ 33°0'
Group 191. Scattered group, but with two principal spots.								24 ^h 46 ^m 6 ^s	109	454	78	320	276°5'	— 15°2'	+ 44°3'
Jan. 18 ^h 52 ^m 6 ^s	11	47	6	26	330°5'	+ 11°2'	+ 20°0'	25 ^h 51 ^m 1 ^s	74	348	71	335	277°5'	— 15°1'	+ 59°0'
19 ^h 50 ^m 3 ^s	68	262	42	162	329°5'	+ 12°2'	+ 31°9'	26 ^h 68 ^m 8 ^s	0	85	0	118	272°6'	— 15°5'	+ 69°6'
20 ^h 7 ^m 11 ^s	0	200	0	153	327°5'	+ 12°8'	+ 45°8'	27 ^h 49 ^m 6 ^s	0	39	0	96	271°8'	— 17°0'	+ 79°4'
21 ^h 7 ^m 23 ^s	0	109	0	111	326°7'	+ 12°8'	+ 58°4'	Means ...	...	...	24	153	274°46'	— 15°21'	...
22 ^h 47 ^m 2 ^s	4	192	6	291	327°5'	+ 11°7'	+ 69°0'	Group 195. Single spot.							
Means ...	...	...	11	149	328°34'	+ 12°14'	...	Jan. 29 ^h 44 ^m 5 ^s	0	25	0	62	87°9'	— 7°7'	— 78°8'
Group 192. Single large spot, but several smaller spots are seen on January 19.								30 ^m	No photograph.	(5)	49	88°2'	— 7°8'	— 65°4)	
Jan. 18 ^h 52 ^m 6 ^s	32	176	49	266	239°2'	— 10°7'	— 71°3'	31 ^h 45 ^m 2 ^s	12	43	10	35	88°4'	— 7°9'	— 51°9'
19 ^h 50 ^m 3 ^s	109	684	105	658	238°5'	— 11°1'	— 59°1'	Feb. 1 ^h	No photograph.	(8)	30	88°3'	— 8°0'	— 38°5)	
20 ^h 7 ^m 11 ^s	99	521	67	352	239°7'	— 12°0'	— 42°0'	2 ^h 51 ^m 4 ^s	9	45	5	25	88°2'	— 8°0'	— 25°1)
21 ^h 7 ^m 23 ^s	82	524	47	301	239°8'	— 11°9'	— 28°5'	3 ^h	No photograph.	(3)	16	88°3'	— 8°3'	— 12°2)	
22 ^h 47 ^m 2 ^s	100	500	53	266	239°7'	— 11°7'	— 18°8'	4 ^h 45 ^m 7 ^s	2	12	1	6	88°3'	— 8°5'	+ 0°7)
23 ^h 52 ^m 1 ^s	89	496	45	252	239°7'	— 12°0'	— 5°0'	Means ...	...	...	5	32	88°23'	— 8°03'	...
24 ^h 46 ^m 6 ^s	94	478	48	244	239°6'	— 12°1'	+ 7°4'	Group 196. Single large spot.							
25 ^h 51 ^m 1 ^s	85	457	46	247	239°7'	— 12°3'	+ 21°2'	Feb. 10 ^h 44 ^m 5 ^s	4	106	14	377	285°8'	— 11°6'	— 82°9'
26 ^h 68 ^m 8 ^s	0	217	0	135	239°4'	— 12°4'	+ 36°4'	11 ^m	No photograph.	(59)	512	285°4'	— 12°5'	— 68°6)	
27 ^h 49 ^m 6 ^s	27	150	20	110	239°6'	— 13°4'	+ 47°2'	12 ^h 67 ^m 9 ^s	123	763	104	647	285°1'	— 13°4'	— 54°2)
28 ^h 09 ^m 9 ^s	10	60	9	52	239°3'	— 12°5'	+ 54°8'	13 ^h 55 ^m 9 ^s	225	1029	152	695	(285°2)	— 13°2'	— 41°7)
29 ^h 44 ^m 5 ^s	0	41	0	68	239°8'	— 13°9'	+ 73°1'	14 ^h 56 ^m 4 ^s	259	1209	149	695	285°2'	— 12°9'	— 29°2)
Means ...	...	...	41	246	239°50'	— 12°17'	...	15 ^h 08 ^m 3 ^s	178	1181	97	642	285°5'	— 13°0'	— 22°1)
								16 ^h 67 ^m 4 ^s	213	1415	107	711	(285°7)	— 13°1'	— 8°6)

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 203. Scattered group.							
1876. _d Mar. 18 ^h 51 ^m 11	2	92	3	121	172 ^o 1	— 8 ^o 9	— 68 ^o 3
19 ^h 68 ^m 8	59	279	48	229	172 ^o 2	— 10 ^o 2	— 52 ^o 7
20 ^h 48 ^m 5	61	210	40	137	174 ^o 2	— 9 ^o 0	— 40 ^o 2
21 ^h 11 ^m 7	28	177	14	90	175 ^o 2	— 9 ^o 5	— 30 ^o 9
22 ^h 53 ^m 4	23	122	12	63	174 ^o 9	— 7 ^o 9	— 12 ^o 7
23 ^h 65 ^m 2	0	38	0	19	177 ^o 8	— 6 ^o 6	+ 5 ^o 2
Means ...	...	...	20	110	174 ^o 40	— 8 ^o 68	...
Group 204. Scattered group, consisting principally of two large spots.							
Mar. 20 ^h 48 ^m 5	40	171	64	275	145 ^o 0	+ 13 ^o 9	— 69 ^o 4
21 ^h 11 ^m 7	35	271	37	292	146 ^o 8	+ 13 ^o 2	— 59 ^o 3
22 ^h 53 ^m 4	236	785	157	522	152 ^o 1	+ 14 ^o 9	— 35 ^o 5
23 ^h 65 ^m 2	89	714	51	415	151 ^o 8	+ 14 ^o 5	— 20 ^o 8
24 ^h 45 ^m 6	164	863	89	469	153 ^o 9	+ 14 ^o 8	— 8 ^o 1
25 ^h 41 ^m 4	148	818	80	442	153 ^o 9	+ 14 ^o 9	+ 4 ^o 5
26 ^h	No photograph.		(57)	396	155 ^o 2	+ 14 ^o 8	+ 11 ^o 8
27 ^h 08 ^m 7	53	560	33	350	156 ^o 4	+ 14 ^o 6	+ 19 ^o 1
28 ^h 67 ^m 3	9	304	6	266	157 ^o 5	+ 14 ^o 7	+ 51 ^o 1
29 ^h 58 ^m 9	50	182	71	257	160 ^o 5	+ 15 ^o 1	+ 66 ^o 2
30 ^h 46 ^m 6	15	72	39	189	159 ^o 6	+ 14 ^o 8	+ 76 ^o 9
Means ...	...	...	62	352	153 ^o 88	+ 14 ^o 56	...
Group 205. Single small spot.							
Mar. 22 ^h 53 ^m 4	8	24	8	24	128 ^o 8	+ 7 ^o 8	— 58 ^o 8
23 ^h 65 ^m 2	1	38	1	27	129 ^o 4	+ 7 ^o 5	— 43 ^o 2
24 ^h 45 ^m 6	13	47	8	29	129 ^o 6	+ 8 ^o 0	— 32 ^o 4
25 ^h 41 ^m 4	15	31	8	17	130 ^o 2	+ 8 ^o 3	— 19 ^o 2
Means ...	...	...	6	24	129 ^o 50	+ 7 ^o 90	...
Group 205*. A small spot following Group 204.							
Mar. 29 ^h 58 ^m 9	2	21	2	18	145 ^o 3	+ 13 ^o 6	+ 51 ^o 0
30 ^h 46 ^m 6	0	12	0	14	144 ^o 9	+ 13 ^o 0	+ 62 ^o 2
Means ...	...	...	1	16	145 ^o 10	+ 13 ^o 30	...
Group 206. Very small single spot.							
Apr. 4 ^h 41 ^m 2	0	4	0	4	318 ^o 5	— 14 ^o 0	— 59 ^o 0
Means ...	...	...	0	4	318 ^o 5	— 14 ^o 0	...
Group 206*. A group only seen close to the west limb.							
1876. _d Apr. 6 ^h 67 ^m 6	0	35	0	99	266 ^o 3	— 19 ^o 5	— 81 ^o 3
Means ...	...	...	0	99	266 ^o 3	— 19 ^o 5	...
Group 207. Very small single spot.							
Apr. 8 ^h 52 ^m 7	0	29	0	19	287 ^o 8	+ 14 ^o 0	— 35 ^o 4
9 ^h 55 ^m 5	0	16	0	9	288 ^o 5	+ 13 ^o 9	— 21 ^o 1
Means ...	...	...	0	14	288 ^o 15	+ 13 ^o 95	...
Group 208. Group of small spots.							
Apr. 9 ^h 55 ^m 5	0	8	0	7	260 ^o 1	+ 12 ^o 2	— 49 ^o 5
10 ^h 66 ^m 7	0	67	0	43	260 ^o 0	+ 11 ^o 5	— 34 ^o 9
11 ^h 45 ^m 3	0	51	0	30	258 ^o 5	+ 11 ^o 3	— 26 ^o 0
12 ^h 68 ^m 2	11	122	6	65	259 ^o 3	+ 11 ^o 7	— 9 ^o 0
13 ^h 05 ^m 1	0	29	0	15	259 ^o 7	+ 11 ^o 3	— 3 ^o 7
Means ...	...	...	1	32	259 ^o 52	+ 11 ^o 60	...
Group 208*. Group consisting mainly of one small spot.							
Apr. 14 ^h 61 ^m 1	22	86	12	46	221 ^o 7	— 6 ^o 5	— 21 ^o 1
15 ^h 50 ^m 8	14	47	7	24	221 ^o 1	— 6 ^o 1	— 9 ^o 9
16 ^h 53 ^m 7	0	16	0	8	217 ^o 7	— 6 ^o 5	+ 0 ^o 3
Means ...	...	...	6	26	220 ^o 17	— 6 ^o 37	...
Group 208†. A short stream of small spots.							
Apr. 13 ^h 05 ^m 1	12	51	6	26	272 ^o 4	+ 2 ^o 6	+ 9 ^o 0
Means ...	...	...	6	26	272 ^o 4	+ 2 ^o 6	...
Group 208‡. A small faint spot.							
Apr. 17 ^h 66 ^m 2	0	115	0	59	191 ^o 0	— 3 ^o 2	— 11 ^o 5
18 ^h 55 ^m 8	0	38	0	19	192 ^o 1	— 3 ^o 1	+ 1 ^o 4
Means ...	...	...	0	39	191 ^o 55	— 3 ^o 15	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 209. Fairly large spot, with a small one at a little distance, the latter almost disappearing on May 10.								Group 211. Group of small spots.							
1876. _a May 7 ^h 58 ^m 9 ^s	73	250	67	229	242 ^o 6'	-13 ^o 6'	-56 ^o 6'	1876. _a July 3 ^h 59 ^m 9 ^s	22	90	16	64	308 ^o 0'	-11 ^o 2'	+43 ^o 2'
8 ^h 46 ^m 8 ^s	71	248	50	176	243 ^o 3'	-13 ^o 3'	-44 ^o 3'	4 ^h 56 ^m 6 ^s	0	56	0	54	309 ^o 5'	-10 ^o 6'	+57 ^o 6'
9 ^h 48 ^m 3 ^s	57	265	34	158	243 ^o 1'	-13 ^o 7'	-31 ^o 1'	Means	...	...	8	59	308 ^o 7 ⁵ '	-10 ^o 9 ⁰ '	...
10 ^h 46 ^m 3 ^s	52	213	28	112	244 ^o 3'	-14 ^o 0'	-16 ^o 9'	Group 212. Group consisting mainly of three fairly large spots, of which two disappear on July 7.							
11 ^h 47 ^m 5 ^s	43	174	22	89	245 ^o 3'	-14 ^o 2'	-2 ^o 5'	July 3 ^h 59 ^m 9 ^s	72	323	67	299	208 ^o 4'	-6 ^o 7'	-56 ^o 4'
12 ^h 57 ^m 6 ^s	52	206	27	108	245 ^o 6'	-14 ^o 6'	+12 ^o 3'	4 ^h 56 ^m 6 ^s	28	276	20	196	208 ^o 2'	-7 ^o 5'	-43 ^o 7'
13 ^h 45 ^m 1 ^s	39	189	22	106	245 ^o 6'	-15 ^o 0'	+23 ^o 9'	5 ^h 57 ^m 8 ^s	41	233	24	138	207 ^o 9'	-6 ^o 4'	-30 ^o 7'
14 ^h	No photograph.	(11	58	245 ^o 6'	-15 ^o 1'	+37 ^o 9'		6 ^h 57 ^m 3 ^s	19	126	10	67	208 ^o 4'	-6 ^o 0'	-17 ^o 1'
15 ^h 56 ^m 3 ^s	0	11	0	9	245 ^o 5'	-15 ^o 2'	+51 ^o 8'	7 ^h 40 ^m 7 ^s	31	127	16	65	208 ^o 9'	-5 ^o 5'	-5 ^o 5'
Means	...	...	29	116	244 ^o 54'	-14 ^o 30'	...	8 ^h 46 ^m 3 ^s	35	88	18	46	212 ^o 0'	-8 ^o 0'	+11 ^o 6'
Group 209*. A small group.								9	No photograph.	(12	35	211 ^o 5'	-7 ^o 6'	+24 ^o 9'	
May 25 ^h 58 ^m 8 ^s	0	33	0	55	348 ^o 7'	-10 ^o 0'	-72 ^o 4'	10 ^h 54 ^m 5 ^s	9	35	6	23	210 ^o 9'	-7 ^o 2'	+38 ^o 1'
26 ^h 63 ^m 9 ^s	0	33	0	31	349 ^o 6'	-9 ^o 3'	-57 ^o 6'	Means	...	...	22	109	209 ^o 53'	-6 ^o 86'	...
27 ^h 58 ^m 9 ^s	6	34	4	24	350 ^o 3'	-9 ^o 2'	-44 ^o 3'	Group 213. Group of small spots.							
Means	...	...	1	37	349 ^o 53'	-9 ^o 50'	...	July 7 ^h 40 ^m 7 ^s	0	17	0	10	181 ^o 7'	+0 ^o 4'	-32 ^o 7'
Group 210. Single small spot.								8 ^h 46 ^m 3 ^s	23	139	12	73	183 ^o 0'	-0 ^o 3'	-17 ^o 4'
June 21 ^h 44 ^m 0 ^s	0	29	0	40	357 ^o 2'	+0 ^o 6'	-68 ^o 5'	9	No photograph.	(6	39	182 ^o 7'	-0 ^o 2'	-4 ^o 0'	
22 ^h 57 ^m 5 ^s	8	26	7	22	357 ^o 8'	-0 ^o 7'	-52 ^o 9'	10 ^h 54 ^m 5 ^s	0	8	0	4	182 ^o 3'	0 ^o 0'	+9 ^o 5'
23 ^h 58 ^m 0 ^s	9	39	6	25	357 ^o 9'	-0 ^o 5'	-39 ^o 4'	11 ^h 57 ^m 5 ^s	0	44	0	25	186 ^o 7'	-1 ^o 9'	+27 ^o 5'
24 ^h 68 ^m 9 ^s	0	38	0	21	358 ^o 4'	-0 ^o 8'	-24 ^o 3'	Means	...	...	4	30	183 ^o 28'	-0 ^o 40'	...
Means	...	...	3	27	357 ^o 83'	-0 ^o 35'	...	Group 214. Single small spot.							
Group 210*. A very small spot.								July 6 ^h 57 ^m 3 ^s	0	56	0	56	165 ^o 1'	+9 ^o 3'	-60 ^o 4'
June 26 ^h 43 ^m 2 ^s	0	11	0	6	25 ^o 5'	-7 ^o 9'	+25 ^o 9'	7 ^h 40 ^m 7 ^s	0	14	0	11	165 ^o 3'	+9 ^o 7'	-49 ^o 1'
Means	...	...	0	6	25 ^o 5'	-7 ^o 9'	...	8 ^h 46 ^m 3 ^s	5	8	3	5	165 ^o 2'	+9 ^o 7'	-35 ^o 2'
Group 210†. A short stream of spots.								Means	...	...	1	24	165 ^o 20'	+9 ^o 57'	...
June 27 ^h 58 ^m 0 ^s	0	70	0	58	37 ^o 1'	+6 ^o 9'	+52 ^o 7'	Group 215. Single small spot.							
28 ^h 58 ^m 6 ^s	12	58	15	76	38 ^o 6'	+6 ^o 1'	+67 ^o 5'	July 19 ^h 59 ^m 1 ^s	0	64	0	58	356 ^o 6'	+3 ^o 0'	-56 ^o 5'
29 ^h 09 ^m 4 ^s	31	126	50	209	37 ^o 2'	+6 ^o 8'	+72 ^o 8'	20 ^h 57 ^m 1 ^s	9	52	6	36	356 ^o 7'	+2 ^o 6'	-43 ^o 5'
Means	...	...	22	114	37 ^o 63'	+6 ^o 60'	...	21 ^h 59 ^m 4 ^s	0	14	0	8	357 ^o 3'	+2 ^o 3'	-29 ^o 4'
								22 ^h 45 ^m 1 ^s	0	17	0	9	357 ^o 9'	+2 ^o 4'	-17 ^o 4'
								Means	...	...	2	28	357 ^o 13'	+2 ^o 58'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.						
Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.				Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.									
Group 216. Single small spot.									Group 220—continued.														
1876. _a July 20 ⁵⁷¹ 21 ⁵⁹⁴	9 0	23 6	9 0	22 4	342 ¹ 343 ²	— 7 ⁴ — 7 ⁵	— 58 ¹ — 43 ⁵	1876. _a Aug. 27 28 ⁵⁸⁸ 29 ⁴⁸¹	No photograph. 7 0	87 18	(7 7 0	86 89 27	303 ¹ 302 ⁶ 300 ⁹	— 10 ⁵ — 10 ⁶ — 9 ⁹	+ 46 ⁵ + 58 ² + 68 ³	Means	12	67	301 ⁴⁶	— 9 ⁸⁰	...
Group 217. Single spot. It is not seen on July 29 but a number of spots in a short stream mark its place on July 31.									Group 221. Two small spots, one of which breaks into small fragments on September 1, and finally disappears on September 5.														
July 21 ⁵⁹⁴ 22 ⁴⁵¹ 23 24 ⁵⁸⁰ 25 ⁴⁹³ 26 ⁴⁹⁵ 27 ⁴³³ 28 ⁵⁸⁷ 29 ⁵⁷⁸ 30 31 ¹¹⁶	19 22 No photograph. 18 39 36 31 0 0 No photograph. 8	71 96 127 127 179 126 80 0 0 81	32 23 (17 11 22 19 16 42 0 0 (0 7	121 102 90 78 100 66 42 17 0 0 72	315 ¹ 315 ⁰ 315 ¹ 315 ² 314 ⁷ 315 ¹ 315 ³ 315 ⁷ 313 ⁹	— 10 ³ — 9 ⁹ — 10 ⁵ — 11 ¹ — 10 ⁵ — 10 ⁷ — 11 ⁰ — 10 ⁵ — 10 ⁴	— 71 ⁶ — 60 ³ — 46 ¹ — 31 ⁹ — 20 ⁴ — 6 ⁷ + 5 ⁹ + 21 ⁶ + 53 ²	Aug. 30 ⁵⁸² 31 ⁴⁵¹ Sept. 1 ⁵⁹⁹ 2 ⁶⁴⁹ 3 4 ⁵⁸⁸ 5 ⁵⁸²	14 26 31 0 No photograph. 0 0	89 81 129 320 No photograph. 98 8	8 14 17 0 (0 0 0 0	50 44 70 189 136 83 9	201 ⁵ 199 ⁸ 202 ² 202 ⁵ 202 ² 201 ⁹ 198 ⁴	— 12 ⁹ — 13 ⁶ — 13 ¹ — 12 ⁸ — 13 ⁴ — 13 ⁹ — 13 ³	— 16 ⁵ — 6 ⁷ + 10 ⁸ + 25 ⁰ + 37 ⁵ + 50 ⁰ + 59 ⁶	Means	6	83	201 ²¹	— 13 ²⁹	...
Group 218. Single small spot.									Group 222. Single spot.														
Aug. 7 ⁴⁶⁰	0	74	0	87	229 ²	+ 10 ¹	+ 65 ⁶	Sept. 18 ⁴⁴⁰	0	20	0	31	41 ⁰	+ 11 ⁴	+ 72 ⁰	Means	0	31	41 ⁰	+ 11 ⁴	...
Group 219. Two spots.									Group 223. Two small spots.														
Aug. 16 ⁴⁹⁹ 17 ⁴⁶⁵ 18 ⁶⁸¹ 19 ⁶⁸⁶	0 70 16 19	50 193 199 153	0 46 9 10	41 127 111 80	354 ¹ 353 ³ 353 ² 353 ¹	— 8 ¹ — 7 ² — 7 ⁰ — 7 ⁴	— 50 ⁰ — 38 ⁰ — 22 ¹ — 8 ⁸	Sept. 14 ⁵⁸⁸ 15 ⁷⁴⁵ 16 ⁵⁸¹ 17 18 ⁴⁴⁰	30 57 32 No photograph. 63	168 197 176 No photograph. 241	28 39 19 (26 33	157 136 106 116 126	324 ² 324 ⁰ 324 ² 323 ⁹ 323 ⁶	— 9 ³ — 9 ⁵ — 9 ⁷ — 9 ⁷ — 9 ⁶	— 55 ⁶ — 40 ⁵ — 29 ⁴ — 17 ⁴ — 5 ⁴	Means	29	128	323 ⁹⁸	— 9 ⁵⁶	...
Group 220. Only one spot is seen at first, but a second of equal size appears on August 25.									Group 224. Two spots of nearly equal size, of which the preceding spot grows larger, and the following spots smaller on October 4 and 5.														
Aug. 22 ⁵⁸⁷ 23 ⁴⁰³ 24 25 ⁵⁸⁶ 26 ⁷³⁹	7 22 No photograph. 62 11	79 74 177 129	4 12 (23 34 7	45 40 69 97 83	300 ⁵ 299 ² 300 ⁴ 301 ⁵ 303 ⁵	— 9 ¹ — 9 ⁴ — 9 ³ — 9 ² — 10 ⁴	— 23 ¹ — 13 ⁷ + 1 ⁹ + 17 ⁵ + 34 ⁷	Sept. 27 ⁵⁸⁶ 28 ⁴⁶⁵ 29 ⁴⁹⁵ 30 ⁵⁸⁷	47 120 195 89	488 505 728 737	39 81 113 47	403 341 421 390	157 ¹ 156 ⁴ 156 ⁰ 154 ⁹	— 5 ⁹ — 6 ³ — 6 ⁴ — 6 ²	— 51 ² — 40 ³ — 27 ¹ — 13 ⁸	Oct. 1 2 ⁵⁷⁸	No photograph. 49	No photograph. 452	(37 26	315 239	156 ⁴ 157 ⁹	— 5 ⁶ — 5 ⁰	+ 0 ⁸ + 15 ⁴

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.				Umbra.	Whole Spot.							
Group 224—continued.									Group 227*. A group seen only near the east limb.								
1876. _a						°	°	°	1876. _a						°	°	°
Oct. 3 ^h 58 ^m 5	48	409	28	238	157.7	— 4.9	+ 28.5		Nov. 13 ^h 65 ^m 7	0	78	0	66	254.0	— 5.0	— 53.5	
4 ^h 54 ^m 4	56	257	39	180	159.5	— 4.4	+ 43.0										
5 ^h 44 ^m 3	52	194	46	172	159.4	— 4.4	+ 54.7		Means ...	...	...	0	66	254.0	— 5.0	...	
6 ^h 56 ^m 5	23	89	34	131	159.3	— 4.1	+ 69.5										
Means ...	...	...	49	283	157.46	— 5.32	...										
Group 225. Scattered group.									Group 228. Single spot.								
Oct. 11 ^h 55 ^m 9	4	34	2	18	17.7	— 10.2	— 6.2		Nov. 13 ^h 65 ^m 7	0	65	0	84	240.0	+ 2.6	— 67.5	
12 ^h 49 ^m 8	55	189	29	99	17.2	— 10.6	+ 5.6		14 ^h 58 ^m 2	39	144	34	125	240.5	+ 1.5	— 54.8	
13	No photograph.	(31)	123	17.4	— 10.4	+ 17.5			15 ^h 51 ^m 8	25	96	17	65	240.8	+ 1.2	— 42.2	
14	No photograph.	(32)	147	17.5	— 10.2	+ 29.4			16 ^h 49 ^m 7	10	52	6	30	240.9	+ 1.0	— 29.2	
15	No photograph.	(33)	171	17.6	— 10.0	+ 41.3			Means ...	...	...	14	76	240.55	+ 1.58	...	
16 ^h 05 ^m 2	40	222	35	195	17.8	— 9.8	+ 53.1										
17 ^h 46 ^m 8	81	389	144	694	18.5	— 9.4	+ 72.5										
18 ^h 07 ^m 0	4	93	14	331	18.9	— 10.0	+ 80.8										
Means ...	...	...	40	222	17.83	— 10.08	...										
Group 226. One large spot and two or three small ones.									Group 229. Two spots of nearly equal size.								
Oct. 19 ^h 46 ^m 9	53	262	62	308	217.1	— 13.4	— 62.5		Nov. 15 ^h 51 ^m 8	79	238	94	285	219.1	— 11.3	— 63.9	
20 ^h 08 ^m 3	28	288	26	270	216.3	— 12.7	— 55.2		16 ^h 49 ^m 7	72	261	61	219	218.4	— 11.5	— 51.7	
21 ^h 07 ^m 9	52	322	39	234	215.2	— 12.8	— 43.2		17	No photograph.	(40)	163	218.5	— 11.2	— 41.1		
22	No photograph.	(35)	238	214.8	— 12.8	— 29.5			18 ^h 08 ^m 0	32	177	19	106	218.6	— 10.8	— 30.5	
23 ^h 22 ^m 0	55	439	30	241	214.4	— 12.8	— 15.8		19 ^h 49 ^m 3	80	306	42	161	218.6	— 10.9	— 12.0	
24	No photograph.	(27)	179	215.8	— 12.7	— 1.4			20 ^h 09 ^m 7	16	122	8	63	219.9	— 10.9	— 2.7	
25 ^h 19 ^m 3	44	215	24	116	217.2	— 12.7	+ 13.0		21 ^h 02 ^m 1	8	129	4	67	220.2	— 10.9	+ 9.8	
26 ^h 04 ^m 9	29	136	17	79	217.9	— 12.4	+ 25.1		Means ...	...	...	38	152	219.04	— 11.07	...	
27 ^h 08 ^m 0	25	141	17	95	218.1	— 12.5	+ 38.8										
Means ...	...	...	31	196	216.31	— 12.76	...										
Group 226*. A stream of spots.									Group 230. Single spot.								
Nov. 2 ^h 64 ^m 8	53	221	34	143	131.8	+ 10.9	+ 39.2		Nov. 19 ^h 49 ^m 3	0	16	0	26	302.3	— 8.0	+ 71.7	
3 ^h 75 ^m 2	32	308	29	271	133.3	+ 10.4	+ 55.2		Means ...	...	...	0	26	302.3	— 8.0	...	
4 ^h 66 ^m 4	23	123	36	172	135.3	+ 10.5	+ 69.3										
Means ...	...	...	33	195	133.47	+ 10.60	...										
Group 227. Single spot.									Group 231. Single spot.								
Nov. 9 ^h 57 ^m 2	0	27	0	28	301.1	— 6.1	— 60.3		Dec. 18 ^h 04 ^m 5	37	178	53	258	145.2	+ 10.2	— 69.1	
Means ...	...	...	0	28	301.1	— 6.1	...		19 ^h 24 ^m 8	55	445	49	394	144.2	+ 10.1	— 54.4	
									20 ^h 11 ^m 6	95	579	66	402	144.4	+ 10.8	— 42.6	
									21 ^h 10 ^m 3	72	257	42	150	145.8	+ 10.6	— 28.2	
									22 ^h 54 ^m 9	171	1281	89	667	145.4	+ 10.5	— 9.6	
									23 ^h 06 ^m 6	85	532	44	274	145.5	+ 10.4	— 2.7	
									24	No photograph.	(54)	331	145.5	+ 10.3	+ 10.4		
									25	No photograph.	(65)	388	145.6	+ 10.2	+ 23.5		
									26	No photograph.	(75)	445	145.6	+ 10.1	+ 36.5		
									27 ^h 02 ^m 0	107	631	85	501	145.7	+ 10.0	+ 49.6	
									28	No photograph.	(94)	440	145.4	+ 9.9	+ 62.7		
									29 ^h 05 ^m 3	48	178	103	378	145.1	+ 9.7	+ 75.7	
									Means ...	...	...	68	386	145.28	+ 10.23	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 231*. Two small spots.							
1877. _d Jan. 6 ^o 57	o	73	o	58	273.7	+ 6.5	- 50.2
Means ...	...	...	o	58	273.7	+ 6.5	...
Group 231†. One or two spots, mostly small.							
Jan. 8 ^o 48	o	30	o	18	266.7	+ 5.8	- 31.0
9 ^o 68	o	15	o	8	267.1	+ 6.3	- 17.2
10 ^o 68	o	92	o	47	267.1	+ 5.8	- 4.0
11 ^o 243	o	113	o	59	267.7	+ 6.3	+ 12.0
Means	...	...	o	33	267.15	+ 6.05	...
Group 232. One regular spot, α, usually with a small companion.							
Jan. 10 ^o 68	29	174	57	375	195.4	+ 8.8	- 75.7
11 ^o 243	38	236	38	256	194.2	+ 8.5	- 61.5
12 ^o 52	44	273	35	220	194.9	+ 8.6	- 50.1
13 ^o 36	29	302	19	197	194.4	+ 8.5	- 37.6
14	No photograph.	(37	206	194.7	+ 8.8	- 20.6)	
15 ^o 585	106	415	55	215	194.9	+ 9.0	- 3.6
16	No photograph.	(48	190	195.1	+ 9.2	+ 6.5)	
17 ^o 89	74	307	40	166	195.2	+ 9.3	+ 16.5
18 ^o 49	46	306	27	181	195.0	+ 9.5	+ 29.0
19 ^o 41	56	313	39	219	194.8	+ 9.5	+ 41.8
20 ^o 50	32	235	29	216	194.8	+ 9.6	+ 55.2
21	No photograph.	(43	212	194.4	+ 9.6	+ 68.4)	
22 ^o 118	15	54	56	207	193.9	+ 9.5	+ 81.5
Means ...	...	...	40	220	194.75	+ 9.11	...
Group 232*. A short stream of spots.							
Jan. 10 ^o 68	o	87	o	49	297.1	- 8.3	+ 26.0
11 ^o 243	o	68	o	46	298.0	- 8.5	+ 42.3
Means ...	...	...	o	48	297.55	- 8.40	...
Group 233. One regular spot, α, usually with one or two small companions. α preserves its form, but decreases in size as it crosses the Sun.							
Jan. 15 ^o 585	90	390	75	325	147.7	+ 10.8	- 50.8
16	No photograph.	(64	351	147.6	+ 10.7	- 41.1)	
17 ^o 89	87	617	53	377	147.4	+ 10.6	- 31.3
18 ^o 49	76	668	42	367	147.4	+ 10.4	- 18.6
Group 233—continued.							
1877. _d Jan. 19 ^o 41	32	710	17	372	147.0	+ 11.2	- 6.0
20 ^o 50	38	384	20	202	147.6	+ 10.9	+ 8.0
21	No photograph.	(19	177	147.6	+ 11.0	+ 21.6)	
22 ^o 118	28	235	18	151	147.6	+ 11.1	+ 35.2
23 ^o 50	18	100	16	88	147.0	+ 11.6	+ 52.7
24 ^o 536	13	65	17	86	146.3	+ 11.6	+ 65.7
25 ^o 64	o	83	o	156	146.8	+ 11.9	+ 73.2
Means ...	...	...	31	241	147.03	+ 11.07	...
Group 234. One small faint spot.							
Jan. 26 ^o 533	o	39	o	28	9.0	- 7.3	- 45.3
27 ^o 24	o	17	o	11	9.0	- 7.5	- 38.8
Means ...	...	...	o	20	9.00	- 7.40	...
Group 234*. Very small faint spot, that breaks up into several fragments on February 3.							
Jan. 30 ^o 534	o	9	o	9	301.7	- 7.2	- 60.0
31 ^o 78	o	15	o	12	303.1	- 6.9	- 51.4
Feb. 1	No photograph.	(2	13	303.6	- 7.0	- 37.8)	
2 ^o 83	5	25	3	14	304.0	- 7.0	- 24.1
3 ^o 557	o	32	o	16	304.0	- 8.3	- 4.7
4	No photograph.	(o	13	307.6	- 8.0	+ 10.0)	
5	No photograph.	(o	10	311.2	- 7.8	+ 24.7)	
6 ^o 97	o	11	o	7	314.7	- 7.5	+ 39.4
7 ^o 459	o	7	o	6	313.4	- 7.5	+ 56.1
Means ...	...	...	1	11	307.03	- 7.47	...
Group 235. A well-defined regular spot, which gradually diminishes in size but does not otherwise change its form.							
Feb. 7 ^o 459	25	109	28	124	195.3	+ 9.9	- 62.0
8 ^o 523	39	194	31	154	194.9	+ 9.5	- 48.4
9	No photograph.	(26	141	195.2	+ 9.2	- 38.0)	
10 ^o 73	36	218	21	128	195.4	+ 8.8	- 27.5
11	No photograph.	(22	127	195.4	+ 8.8	- 13.4)	
12	No photograph.	(24	126	195.4	+ 8.9	+ 0.7)	
13	No photograph.	(25	125	195.4	+ 8.9	+ 14.8)	
14	No photograph.	(26	124	195.3	+ 8.9	+ 28.9)	
15	No photograph.	(27	124	195.3	+ 9.0	+ 43.0)	
16 ^o 508	29	127	28	123	195.3	+ 9.0	+ 57.1
17 ^o 533	20	89	33	146	195.4	+ 9.0	+ 70.7
Means ...	...	...	26	131	195.30	+ 9.08	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 236. A group of three or four small spots.								Group 239. One small well-defined spot.							
1877. ^d Feb. 26 ^o 48 27 ^o 54 ⁶ 28	0 40 No phot.	57 146 tograph.	0 36 (23)	112 133 88	298 ^o 5 298 ^o 0 298 ^o 5	+ 7 ^o 8 + 7 ^o 0 + 7 ^o 2	-74 ^o 0 -54 ^o 8 -44 ^o 1	1877. ^d Apr. 6 ^o 500 7 ^o 460	3 2	25 28	8 3	63 34	132 ^o 5 132 ^o 7	-12 ^o 6 -12 ^o 9	-79 ^o 9 -67 ^o 0
Means ...	...	...	10	61	298 ^o 59	+ 7 ^o 68	...	Means ...	...	...	6	49	132 ^o 60	-12 ^o 75	...
Group 236*. A short stream of spots.								Group 240. A group composed of three spots, of which the smallest gradually disappears.							
Mar. 1 ^o 089 2 3 ^o 027 4 5 ^o 086	28 No phot. 22 No phot. 18	122 tograph. 285 tograph. 265	15 (13) 11 (11) 10	65 104 143 148 152	311 ^o 5 311 ^o 0 310 ^o 5 309 ^o 9 309 ^o 2	- 8 ^o 2 - 8 ^o 5 - 8 ^o 7 - 8 ^o 6 - 8 ^o 5	-20 ^o 9 - 8 ^o 7 + 3 ^o 6 +16 ^o 5 +29 ^o 4	Apr. 16 ^o 123 17 ^o 476 18 19 ^o 523 20 ^o 470	87 111 No phot. 53 30	685 634 tograph. 278 129	47 70 (64) 58 56	368 401 352 302 243	104 ^o 3 104 ^o 5 104 ^o 1 103 ^o 6 103 ^o 4	-15 ^o 0 -15 ^o 0 -14 ^o 7 -14 ^o 4 -13 ^o 9	+18 ^o 9 +37 ^o 0 +50 ^o 1 +63 ^o 2 +75 ^o 5
Means ...	...	...	12	122	310 ^o 42	- 8 ^o 50	...	Means ...	...	...	59	333	103 ^o 98	-14 ^o 60	...
Group 237. Faint ill-defined spot, which breaks up into several spots on March 10.								Group 241. A group of small spots, which change greatly on April 23.							
Mar. 8 ^o 609 9 ^o 069 10 ^o 559	0 0 0	60 58 34	0 0 0	36 37 40	265 ^o 3 265 ^o 8 273 ^o 6	-10 ^o 8 -11 ^o 1 - 9 ^o 8	+32 ^o 0 +38 ^o 5 +65 ^o 9	Apr. 20 ^o 470 21 22 23 ^o 408 24 ^o 423 25 ^o 417 26 27 ^o 560	6 No phot. No phot. 53 44 36 No phot. 0	58 tograph. tograph. 271 133 121 tograph. 26	4 (12) (20) 27 23 20 (10) 0	41 73 105 137 69 68 46 23	343 ^o 6 344 ^o 7 345 ^o 8 347 ^o 0 347 ^o 7 348 ^o 1 348 ^o 5 348 ^o 9	+ 0 ^o 4 + 0 ^o 9 + 1 ^o 4 + 1 ^o 9 + 2 ^o 3 + 2 ^o 4 + 3 ^o 0 + 3 ^o 6	-44 ^o 3 -30 ^o 2 -16 ^o 1 - 2 ^o 1 +12 ^o 0 +25 ^o 5 +40 ^o 1 +54 ^o 7
Means ...	...	...	0	38	268 ^o 23	-10 ^o 57	...	Means ...	...	...	15	70	346 ^o 79	+ 1 ^o 99	...
Group 238. A scattered group of ill-defined spots, which gradually condenses into two well-defined spots. On March 22, one of the spots has gone off the limb, and the other is only partly visible.								Group 242. A group consisting principally of two small spots, of which one disappears on April 27.							
Mar. 17 ^o 481 18 ^o 399 19 ^o 562 20 21 ^o 169 22 ^o 465	10 83 59 No phot. 25 18	76 357 397 tograph. 236 61	5 46 39 (32) 25 50	39 197 261 249 238 173	128 ^o 0 129 ^o 2 129 ^o 6 129 ^o 2 128 ^o 8 131 ^o 8	-11 ^o 1 -11 ^o 2 -11 ^o 1 -11 ^o 2 -11 ^o 2 -11 ^o 6	+11 ^o 6 +24 ^o 9 +40 ^o 6 +50 ^o 8 +61 ^o 0 +81 ^o 1	Apr. 23 ^o 408 24 ^o 423 25 ^o 417 26 27 ^o 560 28 ^o 062 29 30 ^o 554	29 19 31 No phot. 25 0 No phot. 10	101 69 92 tograph. 108 60 tograph. 30	21 11 16 (15) 13 0 (6) 11	73 41 48 52 56 33 33 33	303 ^o 1 303 ^o 5 305 ^o 3 308 ^o 0 310 ^o 6 310 ^o 8 314 ^o 4 318 ^o 0	- 7 ^o 6 - 7 ^o 5 - 8 ^o 1 - 7 ^o 4 - 6 ^o 6 - 6 ^o 7 - 6 ^o 8 - 6 ^o 8	-46 ^o 0 -32 ^o 2 -17 ^o 3 - 0 ^o 5 +16 ^o 4 +23 ^o 2 +43 ^o 3 +63 ^o 3
Means ...	...	...	33	193	129 ^o 43	-11 ^o 23	...	May 1 ^o 107	0	18	0	28	318 ^o 6	- 7 ^o 5	+71 ^o 3
Means ...	...	...	...	...	...	...	...	Means ...	...	...	10	44	310 ^o 26	- 7 ^o 22	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 243. A scattered group of small faint spots.							
1877. _d Apr. 30 ⁵⁵⁴	0	28	0	25	207.8	+28.6	-46.9
May 1 ¹⁰⁷	0	60	0	47	208.0	+28.8	-39.3
2 ⁰⁷⁵	6	101	4	68	207.5	+29.2	-27.0
3 ⁴²⁸	21	79	13	48	208.6	+30.1	-8.1
4 ⁵¹⁶	0	53	0	32	208.1	+29.9	+5.8
Means ...	...	...	3	44	208.00	+29.32	...
Group 244. A scattered group of small faint spots, condensing on May 5 into a single spot.							
May 4 ⁵¹⁶	23	95	12	49	217.2	-2.6	+14.9
5 ⁴⁴⁷	17	54	10	31	219.3	-1.9	+29.3
6	No photograph.		(7	21	220.0	-1.8	+43.0)
7 ⁴¹⁴	4	12	4	11	220.7	-1.7	+56.7
8 ⁴¹¹	0	14	0	20	221.1	-1.9	+70.3
Means ...	...	...	7	26	219.66	-1.98	...
Group 245. A single well-defined spot.							
May 7 ⁴¹⁴	35	151	35	151	103.8	-14.2	-60.2
8 ⁴¹¹	42	186	31	139	103.7	-14.2	-47.1
9 ⁴⁵⁵	28	100	17	61	103.6	-14.1	-33.4
10 ⁴⁶⁹	35	125	19	68	103.5	-14.0	-20.1
11 ⁵⁹¹	27	118	14	61	103.6	-14.0	-5.1
Means ...	...	...	23	96	103.64	-14.10	...
Group 246. One small well-defined spot. A second appears on May 10, but soon disappears again. Another distant companion is seen on May 17.							
May 9 ⁴⁵⁵	13	40	11	35	82.9	+8.2	-54.1
10 ⁴⁶⁹	44	158	30	107	82.6	+8.4	-41.0
11 ⁵⁹¹	47	249	26	139	85.3	+8.3	-23.4
12	No photograph.		(25	131	85.5	+8.5	-10.4)
13	No photograph.		(24	122	85.7	+8.6	+2.6)
14	No photograph.		(23	114	85.9	+8.7	+15.7)
15 ⁵⁴⁹	39	179	23	105	86.0	+8.8	+29.6
16 ⁰⁹³	17	142	11	90	85.8	+8.6	+36.6
17 ⁰⁵¹	11	117	9	93	86.4	+10.2	+49.9
18 ⁴¹⁸	0	10	0	14	86.4	+8.6	+68.0
Means ...	...	...	18	95	85.25	+8.69	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 247. One small spot. A second appears on May 24, and a third on May 26.							
1877. _d May 17 ⁰⁵¹	0	12	0	25	320.4	+9.8	-76.1
18 ⁴¹⁸	29	102	26	92	323.2	+10.0	-55.2
19	No photograph.		(25	92	323.5	+9.8	-41.6)
20	No photograph.		(24	91	323.7	+9.6	-28.0)
21	No photograph.		(23	90	324.0	+9.4	-14.5)
22	No photograph.		(21	90	324.2	+9.1	-0.9)
23	No photograph.		(20	89	324.4	+8.9	+12.7)
24 ⁴⁷⁰	33	157	19	89	324.7	+8.7	+26.3
25 ⁴⁶⁰	45	143	29	93	323.7	+9.1	+38.4
26 ⁴⁴¹	8	74	7	61	324.2	+8.7	+51.9
Means ...	...	...	19	81	323.60	+9.31	...
Group 248. Two small spots.							
May 26 ⁴⁴¹	23	83	15	53	310.1	-9.3	+37.8
Means ...	...	...	15	53	310.1	-9.3	...
Group 249. Two spots, one of them very small.							
June 3 ⁴⁹⁹	11	36	11	37	108.2	-10.5	-57.5
4 ⁴³²	51	328	37	238	107.8	-10.3	-45.5
5 ⁴⁴¹	70	334	42	200	108.0	-10.2	-32.0
6 ⁴⁶⁴	62	267	33	143	109.0	-10.3	-17.4
7 ⁴¹³	70	281	36	144	108.6	-10.3	-5.3
8 ⁵⁰⁶	71	307	37	159	108.5	-10.4	+9.1
9 ⁴¹⁹	90	404	49	221	108.4	-10.3	+21.1
10	No photograph.		(41	203	108.4	-10.5	+34.6)
11 ⁴⁶⁹	43	239	33	184	108.3	-10.7	+48.1
Means ...	...	...	35	170	108.36	-10.39	...
Group 250. Two small spots.							
June 25 ⁴²⁸	46	134	24	70	227.4	-12.8	-8.0
Means ...	...	...	24	70	227.4	-12.8	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 251.							
A very close pair of well-defined small spots.							
1877. ^a June 28 ⁴⁹⁰ 29 ⁴⁵⁹	16 43	49 129	10 32	30 97	227 ⁸ 228 ¹	—12 ⁰ —12 ⁷	+32 ⁹ +46 ⁵
Means ...	...	...	21	64	227 ⁹⁵	—12 ³⁵	...
Group 252.							
One very small spot, which breaks up into two or three on July 4.							
July 3 ⁴⁴² 4 ⁴⁴⁰ 5 ⁴⁰⁷	16 5 2	48 57 49	10 3 1	31 31 25	91 ¹ 93 ³ 94 ²	+10 ⁶ + 9 ⁸ + 9 ⁶	—38 ² —22 ⁷ — 9 ¹
Means ...	...	...	5	29	92 ⁸⁷	+10 ⁰⁰	...
Group 252*.							
Several small spots in a semicircle.							
July 14 ⁰⁶³	10	49	5	26	358 ⁴	—11 ²	+ 9 ⁷
Means ...	...	...	5	26	358 ⁴	—11 ²	...
Group 253.							
One very small spot.							
July 18 ⁴⁵⁸	10	26	6	16	319 ⁶	—13 ⁴	+29 ¹
Means ...	...	...	6	16	319 ⁶	—13 ⁴	...
Group 254.							
Two very small spots, one of which disappears on August 3.							
Aug. 2 ⁵²³ 3 ⁵⁰³	30 0	74 24	19 0	47 20	129 ² 130 ⁹	+12 ⁴ +12 ¹	+37 ⁹ +52 ⁵
Means ...	...	...	10	34	130 ⁰⁵	+12 ²⁵	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 255.							
A large spot, divided into three portions by bridges. On August 28 it has separated into two small spots, one of which disappears on August 29.							
1877. ^a Aug. 22 ⁵⁰⁶ 23 ⁵³⁴ 24 ⁴⁴⁰ 25 26 27 28 ⁴⁷⁸ 29 ⁵⁷⁰ 30 31 ⁴⁰⁶	8 22 32 No photograph. No photograph. No photograph. 30 22 No photograph. 7	32 104 246 (26 (22 (18 82 59 31	27 32 30 183 135 88 41 30 25 4	116 149 230 183 135 88 41 30 25 19	104 ⁵ 103 ³ 103 ² 103 ⁴ 103 ⁵ 103 ⁷ 103 ⁸ 104 ³ 104 ⁵ 104 ⁷	+ 7 ⁹ + 8 ⁶ + 8 ⁸ + 8 ⁸ + 8 ⁷ + 8 ⁷ + 8 ⁷ + 8 ⁴ + 8 ² + 7 ⁹	—82 ⁷ —70 ³ —58 ⁴ —44 ⁹ —31 ⁴ —18 ⁰ — 4 ⁵ +10 ⁴ +22 ⁸ +35 ¹
Means ...	...	...	19	102	103 ⁸⁹	+ 8 ⁴⁷	...
Group 256.							
Two spots; the following spot, which is small and faint, disappears on September 9; and the larger spot has greatly increased in size by September 5.							
Sept. 4 ⁵⁰³ 5 ⁴⁷⁴ 6 ⁴³⁶ 7 ³⁹² 8 9 ⁵²⁰ 10 11 12 ⁴⁰⁵	19 52 75 77 No photograph. 72 No photograph. No photograph. 42	87 246 315 428 (40 316 (33 (29 170	25 46 51 45 249 36 158 140 123 106	117 216 213 249 307 ³ 308 ² 308 ⁴ 308 ⁶ 308 ⁷	306 ³ 306 ⁵ 307 ² 306 ⁴ 307 ³ 308 ² 308 ⁴ 308 ⁶ 308 ⁷	+ 9 ⁵ + 9 ⁴ + 9 ² + 9 ¹ + 8 ⁸ + 8 ⁶ + 8 ⁶ + 8 ⁶ + 8 ⁶	—69 ² —56 ² —42 ⁸ —30 ⁹ —16 ⁰ — 1 ⁰ +13 ² +25 ⁴ +37 ⁵
Means ...	...	...	37	170	307 ⁵¹	+ 8 ⁹³	...
Group 257.							
One small spot.							
Sept. 12 ⁴⁰⁵ 13 14 15 16 17 18 ⁵²⁴	23 No photograph. No photograph. No photograph. No photograph. No photograph. 2	92 (16 (13 (10 (7 (4 24	19 65 55 45 35 25 1	75 65 55 45 35 25 15	222 ⁵ 222 ⁴ 222 ³ 222 ² 222 ⁰ 221 ⁹ 221 ⁸	—11 ⁴ —11 ⁴ —11 ³ —11 ³ —11 ² —11 ² —11 ¹	—48 ⁷ —35 ³ —22 ⁰ — 8 ⁶ + 4 ⁷ +18 ¹ +31 ⁴
Means ...	...	...	10	45	222 ¹⁶	—11 ²⁷	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 258. Two small faint spots.								Group 261—continued.							
1877. ^d Sept. 18 ⁵²⁴ 19 20 ⁰⁸⁷ 21 ⁴⁶³	0 No photograph. 0 2	21 24 22	0 (0 0 1	12 12 12 12	167 ² 167 ⁴ 167 ⁵ 167 ⁸	— 4 ⁴ — 4 ⁴ — 4 ³ — 5 ³	— 22 ⁹ — 12 ⁶ — 2 ² + 16 ³	1877. ^d Oct. 29 30 ⁵¹³ 31 ⁴⁴⁸	No photograph. 252 238	1095 1095 1271	(114 139 124	603 605 662	335 ² 334 ⁸ 334 ⁶	— 8 ⁰ — 8 ⁰ — 8 ⁰	— 35 ⁹ — 21 ⁶ — 9 ⁵
Nov. 1 ⁴⁴⁵ 2 ¹³¹ 3 ⁴⁸² 4 ⁴⁹¹ 5 ⁴⁴² 6 7 ⁰⁷³	225 199 202 141 107 No photograph. 37	1509 1471 944 760 544 246	116 104 120 101 100 (95 89	778 770 562 543 508 544 579	334 ⁵ 334 ⁷ 334 ⁴ 334 ⁷ 334 ⁶ 334 ³ 334 ⁰	— 8 ¹ — 7 ⁷ — 8 ² — 8 ² — 8 ³ — 8 ³ — 8 ⁴	+ 3 ⁵ + 12 ⁸ + 30 ³ + 44 ¹ + 56 ⁴ + 66 ⁸ + 77 ²	Means ...	...	...	100	611	334 ⁸⁷	— 8 ¹²	...
Group 258*. A very small spot.								Group 262. A somewhat scattered group of small spots.							
Sept. 25 ¹¹¹	0	8	0	5	135 ⁹	— 2 ⁷	+ 32 ³	Oct. 30 ⁵¹³ 31 ⁴⁴⁸	28 43	170 211	20 25	120 124	312 ⁴ 313 ⁰	— 2 ⁵ — 2 ²	— 44 ⁰ — 31 ¹
Means ...	...	...	0	5	135 ⁹	— 2 ⁷	...	Nov. 1 ⁴⁴⁵ 2 ¹³¹ 3 ⁴⁸² 4 ⁴⁹¹ 5 ⁴⁴²	47 8 35 11 0	263 149 148 82 39	25 4 18 6 0	139 76 76 45 24	313 ³ 314 ⁶ 312 ⁸ 313 ⁰ 313 ⁶	— 2 ¹ — 2 ⁵ — 2 ⁴ — 2 ⁵ — 3 ²	— 17 ⁷ — 7 ³ + 8 ⁷ + 22 ⁴ + 35 ⁴
Group 259. One small spot.								Group 263. Two small spots, the second of which moves more quickly than the first, and grows gradually smaller.							
Sept. 25 ¹¹¹ 26 ⁵⁸⁸ 27 ⁵⁰⁶ 28 ⁴¹¹ 29 ⁵²¹	0 18 10 9 5	35 75 41 53 16	0 20 8 6 3	133 85 33 35 9	22 ¹ 21 ⁵ 22 ¹ 21 ⁸ 21 ⁷	— 7 ¹ — 7 ⁶ — 7 ² — 7 ⁰ — 6 ⁷	— 81 ⁵ — 62 ⁵ — 49 ⁸ — 38 ¹ — 23 ⁵	Nov. 14 ⁴⁹⁴ 15 16 ⁵⁴⁸ 17 ⁵⁸⁶	62 No photograph. 31 29	180 113 52	38 (27 16 15	111 85 58 27	125 ² 125 ⁷ 126 ² 126 ⁹	— 9 ⁷ — 9 ⁷ — 9 ⁷ — 10 ³	— 33 ⁷ — 19 ⁷ — 5 ⁷ + 8 ⁷
Means ...	...	...	7	59	21 ⁸⁴	— 7 ¹²	...	Means ...	...	...	24	70	126 ⁰⁰	— 9 ⁸⁵	...
Group 260. One very small spot.								Group 261. A large well-defined spot, surrounded by several small fragments.							
Oct. 1 ⁴¹⁵	5	14	3	8	28 ⁰	— 19 ⁴	+ 7 ⁸	Oct. 26 ⁰⁷² 27 28	15 No photograph. No photograph.	215 (64 (89	39 (64 (89	595 597 600	336 ² 335 ⁸ 335 ⁵	— 8 ¹ — 8 ¹ — 8 ¹	— 78 ⁸ — 64 ⁵ — 50 ²
Means ...	...	...	3	8	28 ⁰	— 19 ⁴	...								

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

AREAS AND POSITIONS OF GROUPS OF SUN SPOTS

DEDUCED FROM THE MEASUREMENT

OF THE

SOLAR PHOTOGRAPHS

FOR EACH DAY IN THE YEARS

1878-1881.

AREAS AND HELIOGRAPHIC POSITIONS OF GROUPS OF SUN SPOTS DEDUCED FOR EACH DAY FROM THE MEASUREMENTS OF THE PHOTOGRAPHS TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT DEHRA DŪN IN INDIA, AT THE MELBOURNE OBSERVATORY, AUSTRALIA, AND AT THE ROYAL ALFRED OBSERVATORY, MAURITIUS, IN THE YEARS 1878 TO 1881.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight.

In the second Column, "Where taken," the place where the photograph was taken is indicated. A photograph taken at Greenwich is indicated by the letter G, one taken in India by the letter I, one taken at Melbourne by the letters Me, and one taken in Mauritius by the letters Ma.

The Projected Area of the Umbrae and Whole Spots is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Column "Longitude from Central Meridian" gives the Mean Heliographic longitude of the group, reckoned from the meridian passing through the centre of the Sun's disk at the moment of observation; longitudes west of the centre being reckoned as positive.

Dates for which neither the decimal of the day nor the place are given indicate dates for which no photographic Record is at present available. In these cases the means have been taken of the areas and positions of the spot-groups as measured on the day immediately preceding and immediately following the day for which the photograph is lacking. These interpolated values are enclosed in brackets, but are used in taking the final means for each spot-group. A similar course has been adopted with respect to the positions of spot-groups on photographs taken in Mauritius. The photographs taken there not being provided with wires, it has not been possible to compute the heliographic co-ordinates of the spot-groups, and these have, therefore, been interpolated from the results obtained on the days immediately preceding and following that upon which the Mauritius photograph was taken. These interpolated values, like the others, are enclosed in brackets, but have been used in taking the final means for the spot-groups.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 266.								
A pair of regular, well-defined spots.								
1878. ^a Jan. 23.584	G	87	239	46	126	325.9	+ 7.7	+ 10.3
24	...	No photograph.		(36	119	327.6	+ 7.8	+ 21.9)
25.087	Me	43	180	27	112	329.3	+ 7.9	+ 33.5
26.083	Me	0	136	0	104	330.0	+ 7.4	+ 47.3
Means ...	...	...	...	27	115	328.20	+ 7.70	...
Group 267.								
A number of small spots in a short stream. A small regular spot alone remains on February 8.								
Feb. 3.210	Ma	24	182	16	116	(152.5	- 7.6	- 23.1)
4	...	No photograph.		(9	71	152.5	- 7.6	- 10.2)
5.179	Ma	6	54	3	27	(152.5	- 7.6	+ 2.7)
6	...	No photograph.		(2	23	152.5	- 7.6	+ 17.5)
7	...	No photograph.		(1	19	152.5	- 7.6	+ 32.3)
8.545	G	0	21	0	15	152.5	- 7.6	+ 47.0
Means ...	...	...	...	5	45	152.5	- 7.6	...
Group 268.								
A number of small spots in an irregular stream. A small regular spot alone remains on February 8.								
1878. ^a Feb. 5.179	Ma	30	177	15	92	(133.9	- 9.1	- 15.9)
6	...	No photograph.		(10	68	133.9	- 9.1	- 1.1)
7	...	No photograph.		(5	44	133.9	- 9.1	+ 13.6)
8.545	G	0	28	0	21	133.9	- 9.1	+ 28.4
Means ...	...	...	...	8	56	133.9	- 9.1	...
Group 268A.								
A very small spot.								
Feb. 26.150	I	0	7	0	4	258.3	- 1.7	+ 24.7
Means ...	...	...	...	0	4	258.3	- 1.7	...
Group 268B.								
A very small spot.								
Feb. 27.236	I	0	7	0	8	153.2	- 10.7	- 66.1
Means ...	...	...	...	0	8	153.2	- 10.7	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 269.									Group 273.								
A number of spots in a straight stream. The leader, <i>a</i> , is a regular well-defined spot; two or three small spots, <i>b</i> , follow; and, <i>c</i> , is the rear spot of the stream.									A small faint spot, almost entirely hidden by faculae on May 31.								
1878. _a						°	°	°	1878. _a						°	°	°
Mar. 4.521	G	58	235	30	121	148.5	+ 4.0	- 1.2	May 31.420	G	0	11	0	13	3.5	+ 4.4	- 65.4
5.445	G	28	117	15	61	148.3	+ 4.1	+ 10.8	June 1.088	Me	0	13	0	12	4.0	+ 4.9	- 56.1
6.129	I	0	32	0	18	151.1	+ 3.6	+ 22.5	2.280	I	3	18	2	12	5.1	+ 4.6	- 39.2
									3.285	I	5	14	3	8	5.1	+ 4.8	- 25.8
Means ...	...	...	...	15	67	149.30	+ 3.90	...	Means ...	...	...	...	1	11	4.43	+ 4.68	...
Group 270.									Group 274.								
One small spot.									Two small spots.								
Mar. 4.521	G	4	22	4	21	92.8	+ 0.5	- 56.9	June 10.451	G	0	19	0	14	343.8	- 6.7	+ 47.7
5.445	G	0	8	0	6	93.1	+ 0.7	- 44.4	Means ...	...	...	...	0	14	343.8	- 6.7	...
6.129	I	3	18	2	11	93.5	+ 0.8	- 35.1									
Means ...	...	...	...	2	13	93.13	+ 0.67	...									
Group 271.									Group 275.								
A long straight spot, <i>a</i> , from which a considerable portion, <i>c</i> , has broken off by March 14. <i>a</i> is followed by <i>b</i> , a cluster of two or three small spots.									Two regular spots, <i>a</i> and <i>b</i> . They both increase in size, and <i>b</i> divides into two parts, <i>b</i> and <i>c</i> , on July 28.								
Mar. 11.306	I	3	28	2	18	24.3	+ 5.9	- 36.0	June 26.516	G	17	80	12	56	126.1	+ 13.8	+ 42.6
12.491	G	69	308	37	168	27.1	+ 7.2	- 17.6	27.501	G	41	188	36	167	125.6	+ 13.6	+ 55.2
13.303	I	43	369	22	192	28.0	+ 7.1	- 6.0	28.502	G	39	194	54	277	126.9	+ 13.6	+ 69.7
14.489	G	51	252	27	133	29.5	+ 7.3	+ 11.2	29.508	G	3	38	8	94	122.6	+ 13.3	+ 78.8
15.286	I	91	514	51	287	28.8	+ 7.8	+ 21.0	Means ...	...	...	...	28	149	125.30	+ 13.58	...
16.157	I	50	347	31	214	28.3	+ 7.9	+ 32.0									
17	...	No photograph.		(24	150	30.0	+ 7.9	+ 47.4)									
18.234	I	20	106	16	86	31.6	+ 7.8	+ 62.7									
Means ...	...	...	...	26	156	28.45	+ 7.36	...									
Group 271*.									Group 276.								
A small spot.									One small spot.								
Apr. 5.181	I	0	18	0	13	46.0	+ 0.6	- 46.2	July 26.406	G	5	18	3	11	83.2	+ 15.3	+ 35.3
Means ...	...	...	...	0	13	46.0	+ 0.6	...	Means ...	...	...	...	3	11	83.2	+ 15.3	...
Group 272.									Group 277.								
A small regular spot, <i>a</i> , followed by a much larger spot, <i>b</i> . <i>a</i> has disappeared by June 4.									One regular spot.								
May 27.536	G	69	288	66	281	61.6	+ 7.9	- 58.6	Sept. 2.552	G	11	64	24	141	186.3	+ 3.7	- 77.4
28.128	I	54	442	45	351	62.2	+ 8.2	- 50.2	3.532	G	27	119	30	134	186.8	+ 3.6	- 64.0
29.137	I	100	636	63	402	62.7	+ 8.1	- 36.3	4.405	G	38	201	31	165	187.2	+ 4.2	- 52.1
30.116	I	83	492	46	272	63.2	+ 7.9	- 22.9	5.185	Ma	37	233	25	154	(187.2	+ 4.1	- 41.8)
31.420	G	120	541	61	277	63.1	+ 9.0	- 5.8	6.543	G	71	259	39	142	187.2	+ 3.9	- 23.8
June 1.088	Me	105	476	54	242	63.5	+ 8.8	+ 3.4	7.393	G	64	287	33	148	187.6	+ 4.1	- 12.2
2.280	I	39	320	21	173	64.2	+ 8.9	+ 19.9	8.281	I	70	354	35	178	188.1	+ 3.8	0.0
3.285	I	40	143	25	87	64.8	+ 9.0	+ 33.9	9.560	G	52	265	27	139	188.1	+ 3.4	+ 16.9
4.436	G	12	67	9	52	64.7	+ 8.6	+ 49.0	10.561	G	55	249	32	145	188.6	+ 4.0	+ 30.6
5.089	Me	0	10	0	9	64.9	+ 7.7	+ 57.8	11.499	G	44	210	31	145	189.0	+ 4.0	+ 43.4
6.505	G	0	12	0	27	65.9	+ 9.7	+ 77.6	12.399	G	36	144	32	126	189.2	+ 4.2	+ 55.5
Means ...	...	...	...	35	198	63.67	+ 8.53	...	13.500	G	18	64	28	100	190.0	+ 4.1	+ 70.9
									Means ...	...	...	...	31	143	187.94	+ 3.93	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 278. One regular spot.									Group 278A. A small regular spot.								
1878. _d						°	°	°	1878. _d						°	°	°
Oct. 29.305	I	8	66	13	103	163.1	+10.3	-71.7	Nov. 20.290	I	3	20	8	50	226.1	+ 4.2	-78.9
30.182	I	13	94	13	91	163.4	+10.6	-59.9	21.328	I	2	16	2	19	226.5	+ 3.9	-64.8
31.204	I	24	146	17	105	163.9	+10.6	-45.9	22.214	I	0	23	0	19	226.7	+ 4.3	-52.9
Nov. 1.495	G	33	158	19	91	163.4	+10.6	-29.4	Means ...	...	...	...	3	29	226.43	+ 4.14	...
2.283	I	26	149	14	79	163.3	+10.6	-19.1	Group 278B. A small regular spot.								
3.304	I	26	140	13	71	163.0	+10.4	- 5.9	Dec. 19.439	I	5	28	7	36	348.1	- 1.7	+67.3
4.214	I	18	128	9	65	163.2	+ 9.9	+ 6.3	20.168	I	4	11	9	26	348.4	- 1.4	+77.1
5.547	G	31	130	17	71	162.8	+10.1	+23.5	Means ...	...	...	...	8	31	348.25	- 1.55	...
6.319	I	21	109	13	66	163.0	+10.3	+33.8									
7.508	G	26	91	20	71	163.6	+10.5	+50.1									
8.300	I	16	69	16	69	163.3	+10.6	+60.2									
9.182	I	7	23	11	37	163.3	+10.4	+72.0									
Means ...	...	...	...	15	77	163.28	+10.41	...	Means ...	...	...	...	8	31	348.25	- 1.55	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 278C.									Group 282—continued.								
A few very small spots in a compact cluster on January 30. A single small spot on January 31.																	
1879. ^a Jan. 30 ^h 30 ^m 4 31 ^h 29 ^m 0	I I	6 0	43 8	4 0	29 7	129.9 130.5	-23.7 -23.9	+40.3 +53.9	1879. ^a July 1 ^h 12 ^m 2 2 ^h 43 ^m 8 3 ^h 08 ^m 7 4 ^h 49 ^m 6 5 ^h 43 ^m 9	Me G Me G G	61 41 39 17 4	454 194 216 75 34	36 28 31 20 8	268 133 165 90 74	256.4 260.4 259.3 261.0 261.0	-26.7 -26.5 -26.8 -26.3 -26.5	+11.5 +32.9 +40.3 +60.7 +73.2
Means ...	...	...	...	2	18	130.20	-23.8	...	Means ...	...	...	...	30	146	258.43	-26.44	...
Group 279.									Group 283.								
A stream of spots. The leader, <i>a</i> , is a large regular spot, followed by small spots, <i>b</i> , <i>c</i> , and <i>d</i> . <i>b</i> and <i>d</i> have disappeared by April 17, <i>c</i> by April 19.									A small faint regular spot.								
Apr. 15 ^h 59 ^m 4 16 ^h 08 ^m 7 17 ^h 59 ^m 5 18 ^h 45 ^m 3 19 ^h 54 ^m 0 20 ^h 06 ^m 2 21 ^h 12 ^m 8 22 ^h 05 ^m 8 23 ^h 09 ^m 8	G Me G G G Me Me Me Me	64 58 64 62 46 36 29 29 0	320 413 276 315 215 204 176 166 104	36 32 33 33 27 23 23 31 0	182 227 144 169 128 130 140 178 207	153.4 152.0 153.0 153.4 154.5 154.3 154.3 154.2 154.3	-21.1 -20.8 -20.8 -20.6 -20.4 -20.3 -20.7 -20.7 -21.0	-23.8 -18.6 +2.2 +14.0 +29.4 +36.1 +50.1 +62.3 +76.2	July 1 ^h 12 ^m 2 2 ^h 43 ^m 8 3 ^h 08 ^m 7 4 ^h 49 ^m 6 5 ^h 43 ^m 9	Me G Me G G	0 3 10 0 2	10 10 30 19 17	0 3 8 0 1	20 10 25 12 10	170.0 169.7 169.9 169.5 169.5	+28.1 +27.7 +27.9 +27.4 +27.2	-74.9 -57.8 -49.1 -30.8 -18.3
Means ...	...	...	...	26	167	153.71	-20.71	...	Means ...	...	...	...	2	15	169.72	+27.66	...
Group 280.									Group 283A.								
A very small spot, surrounded by faculae.									A large regular spot.								
Apr. 18 ^h 45 ^m 3	G	0	8	0	9	77.1	-26.4	-62.4	July 11 ^h 48 ^m 9 12 ^h 42 ^m 0 13 14 ^h 41 ^m 7 15 ^h 12 ^m 2 16 ^h 42 ^m 3	Ma Ma ... Ma Me Ma	31 45 ... 24 40 8	178 410 No photograph. 227 222 97	16 22 (17 13 23 6	95 206 163 121 129 72	(90.5 (90.5 90.5 (90.5 90.5 (90.5	+5.5 +5.5 +5.5 +5.5 +5.5 +5.5	-17.2 -5.0 +8.3 +21.5 +30.8 +48.0
Means ...	...	...	...	0	9	77.1	-26.4	...	Means ...	...	...	...	16	131	90.5	+5.5	...
Group 281.									Group 284.								
A small regular spot, <i>a</i> , with a very small faint companion, <i>b</i> , on May 10.									A small regular spot.								
May 9 ^h 08 ^m 3 10 ^h 42 ^m 5 11 12 ^h 50 ^m 4	Me G ... G	0 25 ... 7	111 80 No photograph. 30	0 15 (10 4	84 48 32 16	181.2 180.6 181.2 181.9	+14.4 +14.2 +13.9 +13.6	-45.6 -28.5 -13.9 +0.3	Aug. 11 ^h 42 ^m 0 12 ^h 50 ^m 7 13 ^h 43 ^m 0	Ma G G	0 19 9	18 59 20	0 19 13	14 57 29	(98.8 98.8 98.9	-17.4 -17.4 -17.4	+40.1 +54.5 +66.9
Means ...	...	...	...	7	45	181.23	+14.03	...	Means ...	...	...	...	11	33	98.83	-17.40	...
Group 282.									Group 285.								
A regular spot, <i>a</i> , followed by a fainter spot, <i>b</i> , which is surrounded by minute markings. <i>b</i> undergoes much change, and has disappeared by July 4.									A small spot on August 11. Four spots in an irregular group on August 12.								
June 27 ^h 40 ^m 4 28 ^h 52 ^m 6 29 30 ^h 48 ^m 3	G G ... G	55 65 ... 56	142 232 No photograph. 309	40 41 (37 33	105 143 161 179	255.1 257.4 257.6 257.7	-26.3 -25.9 -26.3 -26.7	-39.1 -21.9 -8.8 +4.3	Aug. 11 ^h 42 ^m 0 12 ^h 50 ^m 7 13 ^h 43 ^m 0	Ma G G	8 62 50	79 163 132	6 48 52	55 127 138	(94.1 94.1 94.2	+9.8 +9.8 +10.2	+35.4 +49.8 +62.2
Means ...	...	...	...	...	...	...	...	...	Means ...	...	...	...	35	107	94.13	+9.93	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 294. A few small faint spots in two clusters, <i>a</i> and <i>b</i> .								
1879. ^a Nov. 7 ⁵³³ 8 ¹⁸²	G Ma	11 0	42 26	7 0	37 19	282.7 (282.7)	+26.4 +26.4	-52.9 -44.3
Means ...	...	...	...	3	28	282.7	+26.4	...
Group 295. A fine stream of spots, consisting chiefly at first of three regular spots, <i>a</i> , <i>b</i> , and <i>c</i> .								
Nov. 7 ⁵³³ 8 ¹⁸² 9 ²⁰⁶ 10 ²⁰⁵ 11 ²⁰⁵ 12 ⁵⁷¹ 13 ⁴⁸⁸ 14 ⁴⁷⁵ 15 ⁵⁰³ 16 ²⁰⁸ 17 ¹⁶³ 18 ⁴⁵⁴	G Ma Ma Ma Ma G G G G Ma Ma G	56 63 58 62 49 152 90 44 27 17 16 0	293 402 416 467 490 487 389 261 163 78 66 12	81 71 47 42 28 85 51 26 19 14 17 0	435 440 335 304 279 270 218 157 111 62 72 25	268.6 (268.1 (267.6 (267.1 (266.7 (266.2 (266.6 (267.3 (266.6 (266.6 (266.5 (266.5	-22.7 -22.6 -22.4 -22.3 -22.1 -22.0 -21.5 -22.0 -21.9 -22.0 -22.1 -22.3	-67.0 -58.9 -45.9 -33.3 -20.5 -3.0 +10.5 +23.2 +36.1 +45.3 +57.9 +74.8
Means ...	...	...	...	40	226	267.12	-22.16	...
Group 296. One small spot.								
Nov. 25 ⁵⁵⁴ 26 27 28 ⁵⁴⁷ 29 ¹⁷⁴	G G Ma	3 No photograph. No photograph. 17 0	15 (7 (9 39 26	5 24 24 11 0	23 24 24 25 15	27.1 25.6 24.0 22.5 22.5	-12.2 -12.6 -12.9 -13.3 -13.3	-70.9 -59.2 -47.6 -36.1 -27.8
Means ...	...	...	...	6	22	24.34	-12.86	...
Group 297. One small spot.								
1879. ^a Nov. 28 ⁵⁴⁷	G	0	10	0	10	111.5	+30.3	+52.9
Means ...	...	...	...	0	10	111.5	+30.3	...
Group 298. Two small spots close together, which have coalesced by December 2.								
Nov. 28 ⁵⁴⁷ 29 ¹⁷⁴ 30	G Ma ...	4 0 No photograph.	25 78 (5	5 0 60	30 70 60	355.7 (356.7 357.7	-20.8 -20.7 -20.6	-62.9 -53.6 -39.2
Dec. 1 ²²² 2 ⁵⁵⁵ 3 ⁵³⁷ 4 ⁴⁶⁷	Ma G G G	16 37 19 4	81 163 102 20	9 20 10 2	49 88 55 12	(358.6 359.6 0.3 0.5	-20.5 -20.4 -20.4 -20.8	-24.8 -6.2 +7.5 +19.9
Means ...	...	...	...	7	52	358.44	-20.60	...
Group 299. A small faint spot.								
Dec. 1 ²²² 2 ⁵⁵⁵ 3 ⁵³⁷	Ma G G	0 5 0	19 32 18	0 3 0	15 18 10	(350.0 350.0 349.8	-22.3 -22.3 -22.3	-33.4 -15.8 -3.0
Means ...	...	...	...	1	14	349.93	-22.30	...
Group 300. Three small spots close together.								
Dec. 16 ⁵¹⁶ 17 ³⁸⁹ 18 ²⁵⁹ 19 ⁴⁰⁷ 20 ¹⁷¹ 21 ¹⁹¹	G I I I I I	11 47 50 60 36 48	33 242 258 270 294 297	9 31 29 32 19 26	27 161 152 145 155 160	131.8 133.1 132.8 132.3 132.6 133.3	-18.9 -19.5 -19.9 -19.5 -19.5 -19.4	-50.0 -37.2 -26.1 -11.5 -1.1 +13.0
Means ...	...	...	...	24	133	132.65	-19.45	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 301.									Group 302.									
A small spot, gradually increasing in size as it approaches the central meridian.									Two small spots with a few small faint markings near.									
1880. _a									1880. _a									
Jan. 3'476	G	25	79	33	107	240°0	+20°2	-65°3	Jan. 12'475	G	55	126	37	86	228°1	-17°2	+41°3	
4'208	I	27	116	26	110	241°3	+19°8	-54°4	13'307	I	31	178	26	146	228°0	-17°2	+52°2	
5'232	I	74	340	55	252	240°0	+19°5	-42°1	14'285	I	102	506	119	592	227°9	-16°4	+65°0	
6'324	I	59	392	37	243	240°2	+19°6	-27°5	15'207	I	40	208	86	444	228°2	-15°5	+77°4	
7'183	I	98	635	56	366	239°4	+19°3	-18°0	Means	67	317	228°05	-16°58	...
8	...	No photograph.		(63	355	240°1	+19°3	-4°2										
9'109	Me	125	613	70	343	240°7	+19°2	+9°6										
10'285	I	111	612	68	373	241°5	+19°0	+26°0										
11'269	I	92	459	65	323	241°3	+19°1	+38°7										
12'475	G	59	318	57	307	241°8	+19°0	+55°0										
13'307	I	42	254	59	353	241°5	+19°1	+65°7										
14'285	I	19	93	58	291	241°4	+19°6	+78°5										
Means	...	...	...	54	285	240°77	+19°39	...									
Group 301A.									Group 303.									
A regular spot, followed by some small companions. The leader alone remains by January 6.									Three spots. The middle one is very small and faint, and has disappeared by January 13. The rear spot remains alone on January 15.									
Jan. 4'208	I	6	45	9	63	226°6	-18°8	-73°1	Jan. 9'109	Me	0	74	0	78	180°8	+35°4	-50°3	
5'232	I	32	122	28	108	227°5	-18°9	-54°6	10'285	I	28	143	23	119	177°9	+35°1	-37°6	
6'324	I	21	96	14	63	229°4	-17°6	-38°3	11'269	I	17	144	12	105	175°9	+35°2	-26°5	
7'183	I	23	116	13	66	230°7	-17°4	-26°7	12'475	G	33	116	23	77	176°3	+35°3	-10°5	
									13'307	I	0	114	0	74	176°3	+35°1	+0°5	
									14'285	I	10	64	7	43	174°5	+35°2	+11°6	
									15'207	I	0	27	0	19	171°3	+35°1	+20°5	
Means	16	75	228°55	-18°18	...	Means	9	74	176°14	+35°20	...
Group 301B.									Group 304.									
A stream of small spots, forming s of Group 301.									Two small faint spots.									
Jan. 5'232	I	7	44	4	27	254°0	+17°3	-28°1	Jan. 12'475	G	0	9	0	12	116°8	-18°7	-70°0	
6'324	I	11	56	6	31	254°8	+17°4	-12°9	Means	0	12	116°8	-18°7	...
7'183	I	7	85	4	46	255°2	+17°4	-2°2										
Means	...	...	...	5	35	254°67	+17°37	...									
Group 301C.									Group 305.									
A very small spot forming s of the place of Group 301A.									A large irregular composite spot, preceded by a cluster of faint spots, which disappears before the group reaches the west limb.									
Jan. 10'285	I	0	14	0	8	238°0	-23°8	+22°5	Jan. 14'285	I	16	134	8	70	176°6	-12°7	+13°7	
									15'207	I	120	531	67	297	175°5	-13°3	+24°7	
									16'284	I	195	842	126	549	176°4	-13°3	+39°8	
									17'498	G	103	478	89	412	175°3	-12°8	+54°7	
									18	...	No photograph.		(56	243	173°9	-13°1	+66°1	
									19'445	G	11	34	24	74	172°5	-13°5	+77°5	
Means	0	8	238°0	-23°8	...	Means	62	274	175°03	-13°12	...
Group 305a.									Group 305a.									
A small spot, n, of Group 305.									A small spot, n, of Group 305.									
Jan. 14'285	I	0	27	0	14	173°5	-4°7	+10°6	Jan. 14'285	I	0	27	0	14	173°5	-4°7	+10°6	
15'207	I	0	26	0	14	171°4	-4°9	+20°6	15'207	I	0	26	0	14	171°4	-4°9	+20°6	
Means	0	14	172°45	-4°80	...	Means	0	14	172°45	-4°80	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 306. Several small faint spots in a straggling group.									Group 309. A regular spot undergoing little or no change.								
1880. _a						°	°	°	1880. _a						°	°	°
Jan. 16 ^h 28 ^m 4	I	8	58	4	31	140°6	-24°0	+4°0	Jan. 30 ^h 54 ^m 44	G	20	102	38	194	233°1	-15°4	-75°8
17 ^h 49 ^m 8	G	18	61	10	35	141°7	-24°0	+21°1	31 ^h 42 ^m 1	G	23	181	25	199	233°7	-15°1	-63°6
18	...	No photograph.		(17	58	143°7	-24°3	+35°9)	Feb. 1 ^h 15 ^m 3	I	65	234	55	198	233°6	-15°5	-54°1
19 ^h 44 ^m 5	G	30	100	24	82	145°7	-24°7	+50°7	2 ^h 51 ^m 3	G	48	252	30	157	233°3	-15°6	-36°5
20 ^h 17 ^m 2	I	10	81	10	82	144°7	-25°5	+59°3	3 ^h 32 ^m 3	I	61	306	34	172	233°5	-15°3	-25°6
21 ^h 21 ^m 8	I	0	26	0	59	150°0	-23°0	+78°3	4 ^h 50 ^m 1	G	64	262	33	136	233°3	-15°4	-10°3
Means ...	...	...	...	11	58	144°40	-24°25	...	5 ^h 47 ^m 8	G	65	283	33	144	233°4	-15°4	+2°7
Group 306A. A very small spot.									6 ^h 25 ^m 0	I	51	267	26	136	233°7	-15°3	+13°1
Jan. 24 ^h 28 ^m 4	I	0	7	0	5	75°4	+17°8	+44°1	7 ^h 24 ^m 2	I	50	212	28	120	233°7	-15°1	+26°2
Means ...	...	...	...	0	5	75°4	+17°8	...	8	...	No photograph.		(24	95	233°4	-15°2	+40°0)
Group 307. Two small faint spots.									9 ^h 38 ^m 2	I	24	84	20	71	233°1	-15°2	+53°8
Jan. 26 ^h 45 ^m 1	G	0	20	0	14	323°7	+17°9	-39°1	10 ^h 11 ^m 6	Me	0	43	0	48	233°5	-15°8	+63°9
Means ...	...	...	...	0	14	323°7	+17°9	...	Means ...	...	...	...	29	139	233°44	-15°36	...
Group 308. A large spot preceded by one small spot, and followed by another. The large spot has divided into two portions by February 2, and a third fragment has broken off by February 3. The stream thus formed diminishes in size, and only the leader spot remains by February 10.									Group 310. A large regular spot on February 3. This spot rapidly diminishes in size, and new spots form following it, and by February 12 the group has entirely changed its appearance, being then a stream of small faint spots.								
Jan. 30 ^h 54 ^m 4	G	43	188	104	448	233°8	+19°4	-75°1	Feb. 3 ^h 32 ^m 3	I	12	121	25	257	188°0	+27°6	-71°1
31 ^h 42 ^m 1	G	77	391	104	547	232°1	+19°6	-65°2	4 ^h 50 ^m 1	G	58	255	68	296	186°7	+27°4	-56°9
Feb. 1 ^h 15 ^m 3	I	151	706	149	704	232°8	+19°7	-54°9	5 ^h 47 ^m 8	G	72	331	62	283	186°4	+26°9	-44°3
2 ^h 51 ^m 3	G	115	531	81	376	232°6	+19°9	-37°2	6 ^h 25 ^m 0	I	101	425	74	310	186°4	+26°5	-34°2
3 ^h 32 ^m 3	I	95	673	58	418	233°3	+20°1	-25°8	7 ^h 24 ^m 2	I	118	555	76	357	185°5	+26°5	-22°0
4 ^h 50 ^m 1	G	117	488	67	279	232°9	+20°1	-10°7	8	...	No photograph.		(63	321	185°0	+26°9	-8°4)
5 ^h 47 ^m 8	G	112	459	63	258	232°6	+20°2	+1°9	9 ^h 38 ^m 2	I	84	472	51	286	184°5	+27°4	+5°2
6 ^h 25 ^m 0	I	96	413	55	237	232°9	+20°3	+12°3	10 ^h 11 ^m 6	Me	38	245	24	154	185°4	+27°6	+15°8
7 ^h 24 ^m 2	I	66	347	41	217	232°9	+20°8	+25°4	11 ^h 23 ^m 7	I	49	361	34	250	181°1	+28°0	+26°2
8	...	No photograph.		(36	192	232°4	+20°7	+39°0)	12 ^h 53 ^m 6	G	45	156	36	133	180°1	+28°3	+42°3
9 ^h 38 ^m 2	I	33	176	32	167	231°9	+20°7	+52°6	13 ^h 44 ^m 6	G	1	75	1	79	178°7	+28°2	+52°9
10 ^h 11 ^m 6	Me	25	84	33	112	232°9	+20°7	+63°3	Means ...	...	...	...	47	248	184°35	+27°39	...
11 ^h 23 ^m 7	I	7	30	21	90	231°2	+20°7	+76°3	Group 311. A stream of spots, of which the leader and last spots are the principal members.								
Means ...	...	...	...	65	311	232°64	+20°22	...	Feb. 9 ^h 38 ^m 2	I	73	427	42	246	195°4	+18°2	+16°1
Group 309.									10 ^h 11 ^m 6	Me	75	406	46	250	195°8	+17°9	+26°2
Group 310.									11 ^h 23 ^m 7	I	77	401	59	304	196°4	+18°1	+41°5
Group 311.									12 ^h 53 ^m 6	G	24	186	27	212	197°6	+18°3	+59°8
Group 312.									13 ^h 44 ^m 6	G	20	81	41	162	198°2	+18°0	+72°4
Group 313.									Means ...	...	...	...	43	235	196°68	+18°10	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 312.								
A spot which rapidly increases in size after February 21. A few small faint markings are seen near it on February 22 to 26.								
1880. _d						°	°	°
Feb. 21 ⁴⁰⁰	G	11	33	21	66	303.8	-29.1	-77.3
22 ¹⁷³	I	28	171	37	228	302.2	-29.5	-68.7
23 ²⁹⁷	I	55	317	48	281	301.6	-29.4	-54.5
24 ²⁸⁴	I	52	261	36	184	301.9	-29.1	-41.3
25 ⁵²³	G	55	308	33	183	301.2	-29.1	-25.6
26 ⁵⁰⁹	G	55	308	31	170	300.7	-28.8	-13.1
27 ⁴³⁰	G	56	262	30	142	300.6	-28.8	-1.1
28 ²²¹	I	99	280	54	153	300.9	-28.6	+9.7
29 ¹⁶⁸	I	88	258	51	149	300.4	-28.9	+21.6
Mar. 1 ⁵²⁸	G	47	204	32	138	299.5	-28.7	+38.6
2 ³⁰⁶	I	57	212	45	167	299.2	-28.2	+48.6
3 ¹⁶⁸	I	36	187	35	183	298.6	-28.1	+59.4
4 ⁴⁸²	G	7	71	13	127	297.8	-28.3	+75.9
Means	...	...	...	36	167	300.65	-28.82	...
Group 312*.								
Two small spots.								
Mar. 1 ⁵²⁸	G	25	45	17	30	295.9	+15.4	+35.0
2 ³⁰⁶	I	7	69	5	55	296.3	+15.8	+45.7
3 ¹⁶⁸	I	4	62	4	63	296.0	+15.9	+56.8
Means	...	...	...	9	49	296.07	+15.70	...
Group 312A.								
A very small spot.								
Feb. 22 ¹⁷³	I	0	11	0	8	48.0	+20.7	+37.1
Means	...	...	...	0	8	48.0	+20.7	...
Group 312B.								
A single spot.								
Mar. 6 ²⁴⁴	I	39	102	21	54	215.9	-17.9	+17.2
7 ²¹⁶	I	24	79	14	47	217.4	-17.4	+31.5
8 ²⁷⁹	I	15	65	11	47	217.9	-17.1	+46.1
9 ³²³	I	6	17	6	17	218.2	-17.1	+60.1
Means	...	...	...	13	41	217.35	-17.38	...

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 313.								
A pair of small faint spots.								
1880. _d						°	°	°
Mar. 10 ⁵⁹²	G	3	20	3	20	202.6	-23.3	+61.2
11 ⁵¹⁸	G	0	60	0	78	203.1	-22.8	+73.9
Means	...	...	...	2	49	202.85	-23.05	...
Group 314.								
A regular spot, followed by a cluster of markings at a considerable distance. Both have broken up into two spots each by March 12.								
Mar. 8 ²⁷⁹	I	19	188	11	108	162.3	+20.1	-9.5
9 ³²³	I	77	368	44	210	164.5	+20.1	+6.4
10 ⁵⁹²	G	43	176	27	111	167.5	+19.8	+26.1
11 ⁵¹⁸	G	31	139	23	102	167.9	+20.2	+38.7
12 ⁵¹⁷	G	50	181	46	164	166.3	+20.1	+50.3
13 ⁵¹²	G	9	125	11	174	167.5	+20.4	+64.6
14 ¹⁶⁴	I	24	110	51	242	167.5	+20.4	+73.1
Means	...	...	...	31	159	166.21	+20.16	...
Group 315.								
An irregular spot, surrounded by several smaller spots, which disappear before March 16.								
Mar. 13 ⁵¹²	G	53	139	30	80	111.6	+20.3	+8.7
14 ¹⁶⁴	I	71	437	43	260	111.4	+20.8	+17.0
15 ¹⁷⁵	I	85	425	57	286	113.1	+20.6	+32.1
16 ⁵⁶⁴	G	30	169	28	157	114.1	+20.2	+51.4
17 ⁴⁵⁵	G	17	93	23	123	114.1	+20.1	+63.1
18 ⁶⁰⁷	G	0	49	0	174	114.5	+20.4	+78.7
Means	...	...	...	30	180	113.13	+20.40	...
Group 316.								
A small regular spot.								
Mar. 13 ⁵¹²	G	6	40	10	63	30.1	-18.1	-72.8
14 ¹⁶⁴	I	25	78	27	87	30.0	-17.7	-64.4
15 ¹⁷⁵	I	31	94	24	72	31.7	-17.4	-49.3
16 ⁵⁶⁴	G	24	88	14	52	31.8	-17.0	-30.9
17 ⁴⁵⁵	G	28	83	15	50	31.5	-16.9	-19.5
18 ⁶⁰⁷	G	12	65	6	33	31.6	-16.1	-4.2
19 ⁴⁹¹	G	0	25	0	13	31.8	-16.2	+7.7
Means	...	...	...	14	53	31.21	-17.06	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 316A.									Group 319.								
A few spots, mostly small, in a stream inclined at a considerable angle to the equator.									A stream of spots of which the principal member is a large regular spot.								
1880. _d						°	°	°	1880. _d						°	°	°
Mar. 27 ²¹⁷	I	9	33	5	18	287 ¹	-30 ⁸	+4 ⁹	Apr. 12 ⁴³⁵	G	114	471	66	281	95 ⁵	-19 ⁰	+27 ³
28	...	No photograph.	(12	52	287 ⁹	-30 ⁰	+18 ⁷)		13 ⁴²⁶	G	126	336	84	224	95 ⁷	-18 ⁸	+40 ⁶
29 ¹⁷⁵	I	31	138	20	87	288 ⁸	-29 ²	+32 ⁵	14 ¹⁷⁵	I	63	271	48	216	95 ⁷	-19 ⁵	+50 ⁵
30 ³¹²	I	30	146	24	114	288 ⁹	-28 ⁹	+47 ⁵	15 ²⁸⁶	I	19	115	24	145	97 ⁶	-19 ³	+67 ¹
31 ³⁰³	I	16	84	16	84	287 ³	-28 ⁷	+58 ⁹	16 ⁴⁶⁰	G	0	12	0	39	97 ⁷	-18 ⁸	+82 ⁶
Means	...	...	...	15	71	288 ⁰⁰	-29 ⁵²	...	Means	...	...	...	44	181	96 ⁴⁴	-19 ⁰⁸	...
Group 317.									Group 320.								
A large regular spot. Some smaller spots have formed near it by April 3, but have disappeared by April 7. The principal spot has divided into two parts by April 8.									A number of spots, mostly small, in a long straight stream.								
Mar. 30 ³¹²	I	35	176	54	275	173 ²	+17 ³	-68 ²	Apr. 25 ²⁸⁴	I	53	388	100	900	183 ⁵	+20 ⁶	-74 ⁹
31 ³⁰³	I	35	209	34	205	173 ²	+17 ⁰	-55 ²	26 ³⁰⁶	I	142	634	174	741	184 ⁸	+21 ¹	-60 ¹
Apr. 1 ⁵¹⁰	G	44	192	31	138	173 ²	+17 ⁹	-39 ²	27 ⁵⁷²	G	170	994	132	765	184 ⁸	+19 ⁹	-43 ⁴
2 ²²⁵	I	55	253	35	160	173 ¹	+18 ³	-29 ⁹	28 ³⁰⁰	I	295	1434	198	958	185 ²	+19 ⁹	-33 ⁵
3 ⁴⁶³	G	42	228	24	129	173 ⁹	+18 ¹	-12 ⁷	29 ⁴⁴⁴	G	163	692	95	408	183 ⁸	+20 ³	-19 ⁷
4	...	No photograph.	(32	151	173 ⁸	+18 ⁵	+0 ⁸)		30 ⁴⁹²	G	168	634	94	354	184 ³	+20 ³	-5 ⁶
5 ⁵¹⁸	G	71	302	41	173	173 ⁷	+19 ⁰	+14 ²	May 1 ⁴³⁰	G	145	471	81	266	186 ⁸	+20 ⁵	+9 ⁵
6	...	No photograph.	(40	176	174 ⁰	+18 ⁹	+27 ²)		2 ²⁹³	I	98	348	58	212	188 ⁴	+21 ⁷	+22 ⁶
7 ⁴⁴⁷	G	54	246	39	179	174 ³	+18 ⁸	+40 ²	3 ⁵⁰³	G	36	237	27	173	189 ³	+22 ⁷	+39 ⁴
8 ⁵²⁷	G	21	105	21	103	174 ⁶	+19 ⁰	+54 ⁸	4 ²²⁴	I	27	150	22	123	187 ⁴	+21 ⁰	+47 ¹
9 ²⁵⁴	I	13	59	17	78	174 ⁷	+18 ⁵	+64 ⁵	5 ³¹⁰	I	4	43	5	52	188 ²	+21 ⁸	+62 ²
Means	...	...	...	33	161	173 ⁷⁹	+18 ³⁰	...	Means	...	...	...	90	450	186 ⁰⁵	+20 ⁸⁹	...
Group 317*.									Group 321.								
A very small faint spot.									A large spot, with one or two much smaller companions.								
Apr. 1 ⁵¹⁸	G	0	10	0	16	283 ⁹	-33 ⁵	+71 ⁵	May 2 ²⁹³	I	35	237	82	549	91 ⁶	+26 ⁰	-74 ²
Means	...	...	...	0	16	283 ⁹	-33 ⁵	...	3 ⁵⁰³	G	105	394	123	461	90 ³	+26 ²	-59 ⁶
Group 318.									4 ²²⁴	I	71	466	65	422	90 ⁷	+25 ⁶	-49 ⁶
Two small spots, followed on April 3 by a very small companion.									5 ³¹⁰	I	93	575	67	410	90 ⁰	+25 ⁵	-36 ⁰
Apr. 2 ²²⁵	I	4	60	2	33	199 ⁶	+17 ⁰	-3 ⁴	6 ⁵⁵⁰	G	129	700	79	429	89 ³	+25 ⁶	-20 ³
3 ⁴⁶³	G	48	123	27	70	202 ³	+16 ⁸	+15 ⁷	7 ⁴¹⁵	G	117	602	68	350	89 ⁰	+25 ⁷	-9 ¹
4	...	No photograph.	(17	45	202 ⁴	+17 ⁰	+29 ⁴)		8 ⁴⁷¹	G	140	839	80	482	88 ⁷	+25 ⁶	+4 ⁵
5 ⁵¹⁸	G	7	27	6	20	202 ⁶	+17 ²	+43 ¹	9 ²¹⁷	I	155	713	92	422	88 ²	+26 ¹	+13 ⁹
Means	...	...	...	13	42	201 ⁷³	+17 ⁰⁰	...	10 ¹⁸⁶	I	181	847	116	543	87 ⁶	+26 ⁵	+26 ²
Group 321A.									11 ⁵⁰⁰	G	105	524	85	423	88 ¹	+26 ⁴	+44 ⁰
A small spot, of Group 320.									12 ⁴⁵¹	G	97	367	101	383	87 ⁶	+26 ⁴	+56 ¹
May 5 ³¹⁰	I	0	20	0	14	168 ³	+11 ⁴	+42 ³	13 ⁴²⁰	G	72	265	119	438	87 ⁸	+25 ⁹	+69 ⁰
Means	...	...	...	0	14	168 ³	+11 ⁴	...	14 ⁴³³	G	0	81	0	494	88 ⁹	+25 ⁸	+83 ⁶
Group 321A.									Means	...	...	...	83	447	88 ⁹⁹	+25 ⁹⁵	...
A small spot, of Group 320.									Group 321A.								
A small spot, of Group 320.									A small spot, of Group 320.								
May 5 ³¹⁰	I	0	20	0	14	168 ³	+11 ⁴	+42 ³	Means	...	...	...	0	14	168 ³	+11 ⁴	...
Means	...	...	...	13	42	201 ⁷³	+17 ⁰⁰	...	Group 321A.								

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 322. Two very small spots.									Group 326—continued.								
1880. _d May 7 ^h 41 ^m 5	G	6	35	4	20	80.4	-28.1	-17.7	1880. _d May 29 ^h 42 ^m 7	G	305	1783	160	937	158.2	+13.9	-8.7
									30 ^h 28 ^m 0	I	455	2225	236	1155	158.6	+14.1	+3.0
Means ...	...	...	...	4	20	80.4	-28.1	...	31 ^h 28 ^m 5	I	459	1924	249	1038	158.2	+14.3	+15.8
Group 323. Two spots on May 10, of which only the preceding spot remains, much diminished in size, by May 11.									June 1 ^h 36 ^m 6	I	256	1152	152	687	157.6	+14.6	+29.6
May 10 ^h 18 ^m 6	I	4	122	2	66	67.1	+17.6	+5.7	2 ^h 61 ^m 6	G	98	420	73	313	157.3	+14.6	+45.8
11 ^h 50 ^m 0	G	8	17	5	10	70.4	+17.3	+26.3	3 ^h 22 ^m 3	I	60	282	51	250	157.7	+14.8	+54.2
12 ^h 45 ^m 1	G	4	13	3	9	70.9	+16.9	+39.4	4 ^h 56 ^m 6	G	5	40	6	58	155.1	+15.5	+69.4
Means ...	...	...	...	3	28	69.47	+17.27	...	Means ...	...	...	...	127	574	157.68	+14.20	...
Group 324. A pair of small spots, of which the preceding spot has disappeared by May 14.									Group 327. A regular spot, with a small companion on May 31 and June 1.								
May 13 ^h 42 ^m 0	G	12	54	9	37	54.2	+23.0	+35.4	May 30 ^h 28 ^m 0	I	9	48	16	82	84.6	+25.0	-71.0
14 ^h 43 ^m 3	G	0	21	0	18	52.0	+24.1	+46.7	31 ^h 28 ^m 5	I	23	85	25	90	83.9	+24.8	-58.5
Means ...	...	...	...	5	28	53.10	+23.55	...	June 1 ^h 36 ^m 6	I	21	94	16	72	83.4	+24.1	-44.6
Group 325. A pair of small spots, of which the following spot is very faint.									2 ^h 61 ^m 6	G	24	52	15	32	84.3	+24.2	-27.2
May 20 ^h 48 ^m 2	G	16	75	14	70	232.1	+23.9	-53.2	3 ^h 22 ^m 3	I	19	60	11	35	84.0	+24.3	-19.5
21 ^h 53 ^m 5	G	11	39	8	28	233.1	+24.1	-38.3	4 ^h 56 ^m 6	G	0	25	0	14	83.9	+23.8	-1.8
Means ...	...	...	...	11	49	232.60	+24.0	...	Means ...	...	...	...	14	54	84.02	+24.37	...
Group 325A. A number of very small spots in a short stream.									Group 328. Several small spots in an irregular stream.								
May 24 ^h 22 ^m 2	I	6	20	6	19	290.7	+19.7	+54.8	June 6 ^h 28 ^m 9	I	17	62	12	44	20.4	+14.8	-42.5
Means ...	...	...	...	6	19	290.7	+19.7	...	7 ^h 55 ^m 3	G	7	29	4	17	20.6	+14.4	-25.6
Group 326. A fine stream of spots. The group rapidly increases in size until it passes the central meridian on May 30, and diminishes again even more quickly later.									8 ^h 18 ^m 7	I	11	64	6	34	21.1	+14.7	-16.7
May 24 ^h 22 ^m 2	I	8	29	21	74	157.7	+13.8	-78.2	9 ^h 20 ^m 1	I	8	126	4	66	18.9	+15.1	-5.3
25 ^h 49 ^m 8	G	69	292	77	320	157.5	+13.7	-61.4	10 ^h 48 ^m 5	G	39	201	21	106	18.2	+14.6	+10.9
26 ^h 45 ^m 4	G	201	730	158	576	158.1	+13.3	-48.2	11 ^h 21 ^m 2	I	29	87	16	48	18.7	+14.6	+21.0
27 ^h 60 ^m 2	G	253	1111	156	691	157.9	+14.1	-33.2	12 ^h 43 ^m 3	G	30	104	19	66	17.5	+15.1	+36.0
28 ^h 50 ^m 7	G	324	1424	180	792	158.2	+13.7	-20.9	Means ...	...	...	...	12	54	19.34	+14.76	...
Group 329. A small spot, with a very small companion on June 11.									Group 329. A small spot, with a very small companion on June 11.								
May 24 ^h 22 ^m 2	I	8	29	21	74	157.7	+13.8	-78.2	June 8 ^h 18 ^m 7	I	0	12	0	42	316.6	-21.4	-81.2
25 ^h 49 ^m 8	G	69	292	77	320	157.5	+13.7	-61.4	9 ^h 20 ^m 1	I	11	33	15	47	316.7	-21.4	-67.6
26 ^h 45 ^m 4	G	201	730	158	576	158.1	+13.3	-48.2	10 ^h 48 ^m 5	G	16	33	14	28	316.8	-21.6	-50.5
27 ^h 60 ^m 2	G	253	1111	156	691	157.9	+14.1	-33.2	11 ^h 21 ^m 2	I	13	39	10	29	315.8	-21.7	-41.9
28 ^h 50 ^m 7	G	324	1424	180	792	158.2	+13.7	-20.9	Means ...	...	...	...	10	37	316.48	-21.53	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 330. A regular spot.								
1880. d						°	°	°
June 15 ^h 20 ^m	I	32	100	51	161	234 [°] 1	+23 [°] 3	-70 [°] 8
16 ^h 233	I	30	142	29	139	234 [°] 2	+23 [°] 4	-57 [°] 0
17 ^h 282	I	35	214	26	160	233 [°] 5	+23 [°] 4	-43 [°] 9
18 ^h 501	G	49	249	30	152	232 [°] 9	+23 [°] 5	-28 [°] 3
19 ^h 534	G	115	589	64	329	233 [°] 0	+23 [°] 5	-14 [°] 6
20 ^h 266	I	54	165	29	89	233 [°] 5	+23 [°] 6	-4 [°] 4
21 ^h 469	G	35	193	19	106	232 [°] 8	+23 [°] 4	+10 [°] 8
22 ^h 234	I	29	111	17	64	233 [°] 0	+23 [°] 3	+21 [°] 2
23 ^h 464	G	28	122	19	82	232 [°] 8	+23 [°] 6	+37 [°] 3
Means	...	...	...	32	142	233 [°] 31	+23 [°] 44	...
Group 331. A regular spot, with several small spots in a straggling stream.								
June 15 ^h 200	I	0	12	0	29	226 [°] 8	+24 [°] 1	-78 [°] 1
16 ^h 233	I	0	25	0	37	222 [°] 0	+24 [°] 8	-69 [°] 2
17 ^h 282	I	25	87	26	92	218 [°] 1	+25 [°] 3	-59 [°] 3
18 ^h 501	G	47	150	38	118	214 [°] 7	+25 [°] 1	-46 [°] 5
19 ^h 534	G	43	147	28	97	212 [°] 5	+24 [°] 5	-35 [°] 1
20 ^h 266	I	20	114	12	68	213 [°] 8	+25 [°] 2	-24 [°] 1
21 ^h 469	G	77	128	43	71	213 [°] 0	+24 [°] 9	-9 [°] 0
22 ^h 234	I	26	93	14	51	212 [°] 0	+25 [°] 4	+0 [°] 2
23 ^h 464	G	0	25	0	14	209 [°] 1	+26 [°] 4	+13 [°] 6
Means	...	...	...	18	64	215 [°] 78	+25 [°] 08	...
Group 332. A very fine stream, consisting principally of two large spots with numerous companions.								
June 17 ^h 282	I	40	150	98	367	200 [°] 2	-18 [°] 4	-77 [°] 2
18 ^h 501	G	89	410	98	487	198 [°] 5	-19 [°] 7	-62 [°] 7
19 ^h 534	G	187	646	163	533	198 [°] 4	-20 [°] 2	-49 [°] 2
20 ^h 266	I	255	1092	176	755	200 [°] 1	-21 [°] 3	-37 [°] 8
21 ^h 469	G	290	1385	172	817	201 [°] 5	-22 [°] 2	-20 [°] 5
22 ^h 234	I	292	1327	165	750	201 [°] 5	-22 [°] 9	-10 [°] 3
23 ^h 464	G	457	1926	254	1071	200 [°] 1	-22 [°] 5	+4 [°] 6
24 ^h 527	G	426	1854	249	1084	200 [°] 5	-22 [°] 0	+19 [°] 0
25 ^h 101	Me	201	1756	125	1076	199 [°] 7	-22 [°] 0	+25 [°] 8
26	...	No photograph.	(188	1258	199 [°] 5	-21 [°] 8	+39 [°] 0)	
27 ^h 130	I	264	1585	251	1440	199 [°] 2	-21 [°] 6	+52 [°] 2
28 ^h 511	G	55	255	100	456	199 [°] 8	-22 [°] 2	+71 [°] 1
29 ^h 586	G	0	1	0	3	194 [°] 7	-26 [°] 3	+80 [°] 2
Means	...	...	...	157	777	199 [°] 52	-21 [°] 78	...
Group 333*. A small spot, not seen on June 29.								
1880. d						°	°	°
June 27 ^h 130	I	8	23	13	35	80 [°] 0	-26 [°] 4	-67 [°] 0
28 ^h 511	G	8	14	7	12	79 [°] 8	-26 [°] 2	-48 [°] 9
29 ^h 586	G	0	0	0	0	...	...	...
30 ^h 545	G	0	18	0	11	80 [°] 4	-25 [°] 8	-21 [°] 4
Means	...	...	...	5	15	80 [°] 07	-26 [°] 13	...
Group 333. A few spots, mostly unstable and small at first, in an irregular stream. The group greatly increases in size when near the west limb.								
June 28 ^h 511	I	9	93	11	115	71 [°] 7	-37 [°] 3	-57 [°] 0
29 ^h 586	G	29	73	29	70	68 [°] 5	-37 [°] 6	-46 [°] 0
30 ^h 545	G	21	57	17	44	69 [°] 2	-36 [°] 9	-32 [°] 6
July 1	...	No photograph.	(17	53	69 [°] 3	-36 [°] 5	-20 [°] 3)	
2 ^h 402	G	26	95	17	62	69 [°] 3	-36 [°] 1	-7 [°] 9
3 ^h 497	G	40	151	26	99	68 [°] 9	-36 [°] 8	+6 [°] 1
4 ^h 371	I	56	172	39	119	69 [°] 1	-36 [°] 8	+17 [°] 9
5 ^h 438	G	37	128	29	101	70 [°] 3	-36 [°] 4	+33 [°] 3
6 ^h 131	Me	0	50	0	45	70 [°] 8	-35 [°] 9	+42 [°] 9
7	...	No photograph.	(50	240	68 [°] 6	-36 [°] 7	+55 [°] 8)	
8 ^h 403	G	50	215	99	435	66 [°] 4	-37 [°] 5	+68 [°] 6
9 ^h 480	G	12	48	59	230	62 [°] 7	-38 [°] 6	+79 [°] 1
Means	...	...	...	33	134	68 [°] 73	-36 [°] 93	...
Group 334. A regular spot followed by a few small spots. These latter have disappeared by July 2.								
June 29 ^h 586	G	64	344	36	194	132 [°] 5	-17 [°] 5	+18 [°] 0
30 ^h 545	G	78	322	48	200	132 [°] 5	-17 [°] 3	+30 [°] 7
July 1	...	No photograph.	(43	192	132 [°] 6	-17 [°] 2	+43 [°] 1)	
2 ^h 402	G	41	194	39	185	132 [°] 6	-17 [°] 1	+55 [°] 4
3 ^h 497	G	25	126	41	206	133 [°] 0	-17 [°] 4	+70 [°] 2
4 ^h 371	I	15	49	57	190	132 [°] 2	-17 [°] 4	+81 [°] 0
Means	...	...	...	44	195	132 [°] 57	-17 [°] 32	...
Group 335. Two very small spots.								
June 29 ^h 586	G	5	35	3	20	131 [°] 0	+23 [°] 3	+16 [°] 5
Means	...	...	...	3	20	131 [°] 0	+23 [°] 3	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbr.	Whole Spot.	Umbr.	Whole Spot.						Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 336. A group of small spots, which suffers great change during the period of its visibility.									Group 340—continued.								
1880. _d						°	°	°	1880. _d						°	°	°
July 4 ^h 37 ^m 1	I	16	61	11	42	13.5	-19.0	-37.7	July 29 ^h 52 ^m 6	G	18	53	10	30	59.5	+25.1	-18.9
5 ^h 43 ^m 8	G	49	161	29	95	14.5	-19.6	-22.6	30 ^h 50 ^m 9	G	9	70	5	37	59.9	+24.9	-5.5
6 ^h 13 ^m 1	Me	37	222	21	126	13.6	-19.9	-14.3	31 ^h 43 ^m 0	G	9	36	5	19	59.8	+24.6	+6.6
7	...	No photograph.		(33	147	14.3	-20.4	+1.5	Means	...	...	...	5	40	59.20	+25.10	...
8 ^h 40 ^m 3	G	77	290	45	168	15.0	-20.8	+17.2	Group 341. A cluster of very small spots.								
9 ^h 48 ^m 0	G	36	152	23	98	14.5	-20.6	+30.9	July 26 ^h 55 ^m 3	G	0	4	0	8	43.0	+13.1	-74.7
10 ^h 39 ^m 7	G	7	21	6	17	18.4	-20.6	+47.0	27 ^h 44 ^m 6	G	6	27	6	30	42.0	+12.9	-63.9
11 ^h 13 ^m 8	I	3	10	3	10	19.1	-20.8	+57.5	28 ^h 09 ^m 0	I	41	215	37	192	41.0	+13.8	-57.3
Means	...	...	...	21	88	15.36	-20.21	...	29 ^h 52 ^m 6	G	14	59	9	38	40.0	+13.0	-37.4
Group 337. Two very small spots close together.									Means	...	...	...	13	67	41.50	+13.20	...
July 13 ^h 42 ^m 2	G	0	40	0	26	305.3	-34.0	+13.9	Group 342. A large regular spot, followed by a somewhat straggling stream of smaller spots.								
Means	...	...	...	0	26	305.3	-34.0	...	Aug. 2 ^h 29 ^m 3	I	82	661	97	762	323.7	+11.6	-64.8
Group 338. Two clusters of small spots on July 20. The group increases in size on the succeeding days, and becomes a long irregular stream, in the middle of which a large regular spot forms.									3 ^h 59 ^m 3	G	187	977	135	727	323.2	+11.6	-48.1
July 20 ^h 58 ^m 7	G	58	368	31	199	181.7	+20.6	-14.9	4 ^h 23 ^m 5	I	262	1138	172	740	322.9	+11.8	-40.0
21 ^h 50 ^m 7	G	141	672	74	352	181.9	+21.7	-2.5	5 ^h 19 ^m 4	I	291	1422	165	806	322.8	+11.6	-27.4
22 ^h 21 ^m 9	I	162	969	85	510	181.4	+21.4	+6.4	6 ^h 09 ^m 4	Me	229	1159	120	609	322.3	+11.8	-15.9
23 ^h 57 ^m 3	G	177	981	101	563	180.8	+22.6	+23.7	7 ^h 14 ^m 9	I	303	1253	152	630	324.0	+12.0	-0.4
24 ^h 58 ^m 3	G	124	661	80	447	182.8	+22.9	+39.1	8 ^h 23 ^m 4	I	277	1107	144	573	323.3	+11.9	+13.3
25	...	No photograph.		(61	357	181.8	+23.1	+51.1	9 ^h 58 ^m 2	G	207	965	120	566	323.0	+11.9	+30.8
26 ^h 55 ^m 3	G	38	241	42	267	180.7	+23.2	+63.0	10 ^h 40 ^m 7	G	208	786	138	527	322.9	+12.0	+41.6
27 ^h 44 ^m 6	G	15	127	29	229	180.6	+23.8	+74.7	11 ^h 46 ^m 9	G	97	515	89	466	324.0	+12.3	+56.8
Means	...	...	...	63	366	181.46	+22.41	...	12 ^h 48 ^m 5	G	76	321	109	459	324.2	+12.5	+70.4
Group 339. One small spot.									13 ^h 48 ^m 8	G	0	64	0	279	325.3	+12.2	+84.8
July 21 ^h 50 ^m 7	G	0	16	0	33	107.8	+23.5	-76.6	Means	...	...	...	120	595	323.47	+11.93	...
22 ^h 21 ^m 9	I	9	25	11	32	107.7	+22.9	-67.3	Group 343. A large regular spot.								
23 ^h 57 ^m 3	G	0	9	0	7	107.2	+22.9	-49.9	Aug. 7 ^h 14 ^m 9	I	0	7	0	83	235.1	+23.6	-89.3
Means	...	...	...	4	24	107.57	+23.10	...	8 ^h 23 ^m 4	I	29	175	48	292	236.3	+23.8	-73.7
Group 340. A cluster of very small spots.									9 ^h 58 ^m 2	G	48	275	44	250	235.8	+23.8	-56.4
July 26 ^h 55 ^m 3	G	5	41	5	40	59.0	+25.4	-58.7	10 ^h 40 ^m 7	G	140	444	104	329	235.0	+24.0	-46.3
27 ^h 44 ^m 6	G	7	60	5	46	57.9	+25.3	-48.0	11 ^h 46 ^m 9	G	73	689	45	425	235.0	+24.4	-32.2
28 ^h 09 ^m 0	I	0	99	0	66	59.1	+25.3	-38.2	12 ^h 48 ^m 5	G	197	795	110	444	234.5	+24.6	-19.3
									13 ^h 48 ^m 8	G	200	688	106	364	234.3	+24.6	-6.2
									14	...	No photograph.		(85	340	234.5	+24.7	+5.6
									15	...	No photograph.		(64	315	234.6	+24.8	+17.4
									16 ^h 11 ^m 8	Me	72	484	43	290	234.8	+24.9	+29.1
									17 ^h 56 ^m 2	G	50	280	39	217	235.0	+25.3	+48.3
									18 ^h 24 ^m 1	I	37	243	35	227	235.3	+24.8	+57.6
									19 ^h 50 ^m 8	G	20	78	34	133	235.2	+25.6	+74.2
									20 ^h 21 ^m 8	I	8	35	25	107	234.2	+25.0	+82.6
									Means	...	...	...	56	273	234.97	+24.56	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 343A. A pair of small spots.								
1880. _d Aug. 8 ² 34	I	11	45	12	49	8.8	-16.9	+58.8
Means ...	...	...	...	12	49	8.8	-16.9	...
Group 343B. A small spot.								
Aug. 8 ² 34	I	10	45	6	27	329.1	-21.9	+19.1
Means ...	...	...	...	6	27	329.1	-21.9	...
Group 344. A large regular spot.								
Aug. 9 ⁵ 82	G	30	102	44	150	225.4	-17.5	-66.8
10 ⁴ 07	G	27	170	27	169	225.6	-17.5	-55.7
11 ⁴ 69	G	25	122	16	79	225.7	-17.1	-41.5
12 ⁴ 85	G	39	212	24	131	225.6	-16.9	-28.2
13 ⁴ 88	G	48	228	27	129	225.4	-16.5	-15.1
14	...	No photograph.		(24	116	225.6	-16.4	-3.3
15	...	No photograph.		(22	104	225.8	-16.3	+8.5
16 ¹ 18	Me	33	157	19	91	226.0	-16.2	+20.3
17 ⁵ 62	G	44	147	32	106	226.7	-16.2	+40.0
18 ² 41	I	20	130	17	110	227.0	-16.3	+49.3
19 ⁵ 08	G	9	50	13	69	226.7	-16.1	+65.7
20 ² 18	I	9	37	25	101	228.4	-16.6	+76.8
Means ...	...	...	...	24	113	226.16	-16.63	...
Group 345. A regular spot.								
Aug. 9 ⁵ 82	G	20	73	45	166	213.5	+21.6	-78.7
10 ⁴ 07	G	22	184	28	239	213.0	+21.3	-68.3
11 ⁴ 69	G	44	287	38	245	213.1	+20.9	-54.1
12 ⁴ 85	G	90	396	60	264	213.5	+21.0	-40.3
13 ⁴ 88	G	80	365	46	211	213.3	+21.0	-27.2
14	...	No photograph.		(40	199	213.2	+21.1	-15.7
15	...	No photograph.		(35	188	213.1	+21.3	-4.2
16 ¹ 18	Me	56	338	29	176	213.0	+21.4	+7.3
17 ⁵ 62	G	77	353	44	203	212.4	+21.8	+25.7
18 ² 41	I	66	328	41	204	212.5	+21.7	+34.8
19 ⁵ 08	G	42	256	33	203	211.5	+22.4	+50.5
20 ² 18	I	43	219	43	217	211.9	+21.9	+60.3
21 ⁵ 03	G	40	161	75	303	211.0	+22.4	+76.4
Means ...	...	...	...	43	217	212.69	+21.52	...
Group 346. A regular spot. Several small spots appear near it on August 13, forming with it a long straight stream.								
1880. _d Aug. 9 ⁵ 82	G	0	19	0	48	216.7	-19.2	-75.5
10 ⁴ 07	G	6	50	8	70	216.4	-19.1	-64.9
11 ⁴ 69	G	18	63	16	57	216.3	-19.3	-50.9
12 ⁴ 85	G	24	127	17	90	216.0	-18.9	-37.8
13 ⁴ 88	G	53	267	33	165	215.4	-19.2	-25.1
14	...	No photograph.		(35	194	214.6	-19.0	-14.3
15	...	No photograph.		(37	223	213.9	-18.9	-3.4
16 ¹ 18	Me	71	450	40	252	213.1	-18.7	+7.4
17 ⁵ 62	G	76	368	47	227	212.6	-18.9	+25.9
18 ² 41	I	105	359	70	242	211.0	-19.3	+33.3
19 ⁵ 08	G	12	169	10	147	210.2	-18.9	+49.2
20 ² 18	I	5	32	5	36	211.1	-18.6	+59.5
Means ...	...	...	...	27	146	213.94	-19.00	...
Group 347. A small regular spot, with a companion on August 16.								
Aug. 16 ¹ 18	Me	13	114	10	85	252.6	+21.4	+46.9
17 ⁵ 62	G	23	55	31	76	256.4	+20.6	+69.7
18 ² 41	I	8	44	20	105	257.4	+19.9	+79.7
Means ...	...	...	...	20	89	255.47	+20.63	...
Group 348. A stream of small spots on August 18. The leader has become a large composite spot by August 19.								
Aug. 18 ² 41	I	40	154	21	81	186.9	+22.8	+9.2
19 ⁵ 08	G	149	775	86	452	187.2	+22.9	+26.2
20 ² 18	I	189	938	121	602	188.5	+22.7	+36.9
21 ⁵ 03	G	116	650	103	576	189.4	+22.8	+54.8
22 ² 61	I	85	571	104	664	189.9	+22.4	+65.3
23 ² 05	I	86	444	148	821	188.0	+21.9	+75.9
24 ² 16	I	0	12	0	36	181.7	+21.7	+82.9
Means ...	...	...	...	83	462	187.37	+22.46	...
Group 349. A small spot on August 21, not seen on August 22. The group has re-appeared as a pair of small spots by August 23. These both have greatly increased in size by August 30 and 31.								
Aug. 21 ⁵ 03	G	17	33	19	36	71.2	+23.1	-63.4
22 ² 61	I	0	0	0	0	...	...	...
23 ² 05	I	17	65	12	46	67.8	+22.2	-44.3
24 ² 16	I	35	122	21	72	69.8	+22.7	-29.0
25	...	No photograph.		(16	59	69.0	+22.6	-15.6
26	...	No photograph.		(11	47	68.3	+22.4	-2.2

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 349—continued.									Group 353. One small spot.									
1880. _a									1880. _a									
Aug. 27	...	No photograph.		(5	35	67.5	+22.2	+11.2)	Sept. 2.517	G	0	17	0	34	258.9	+18.7	-77.0	
28.506	G	0	39	0	22	66.7	+22.0	+24.6	3.559	G	9	19	10	21	258.6	+18.5	-63.5	
29.236	I	43	174	27	109	66.0	+21.8	+33.5	4.402	G	10	20	8	16	258.5	+18.6	-52.5	
30.285	I	95	459	72	348	66.8	+21.6	+48.2	5.171	I	7	24	5	16	259.1	+18.4	-41.7	
31.516	G	68	469	74	514	66.0	+21.9	+63.7	6.281	I	7	32	4	18	259.3	+18.3	-26.9	
Sept. 1.404	G	26	252	51	443	65.7	+22.0	+74.6	Means	5	21	258.88	+18.50	...
2.517	G	0	55	0	218	61.3	+23.8	+85.4										
Means	...	...	...	24	150	67.17	+22.36	...									
Group 350. Three very small spots; the first at a little distance from the other two which are close together.									Group 354. A regular spot. A pair of small spots is seen near it on September 10 and the succeeding days.									
Aug. 28.506	G	27	60	16	36	60.0	-20.1	+17.9	Sept. 4.402	G	20	54	49	134	230.2	+25.0	-80.7	
Means	...	...	...	16	36	60.0	-20.1	...	5.171	I	28	105	40	148	230.4	+24.8	-70.4
									6.281	I	35	183	31	163	230.5	+25.2	-55.7	
									7.583	G	48	176	32	117	230.0	+25.2	-39.0	
									8.480	I	64	224	37	130	231.3	+25.0	-25.9	
									9.418	G	57	252	31	137	230.5	+25.4	-14.3	
									10.600	G	44	174	23	92	230.5	+25.4	+1.3	
									11.266	I	64	142	34	76	230.7	+24.8	+10.4	
									12.321	I	28	106	16	60	230.1	+24.8	+23.6	
									13.608	G	0	30	0	20	229.6	+25.1	+40.2	
									Means	29	108	230.38	+25.07	...
Group 351. A regular spot, with a small companion on August 28.									Group 355. A number of small spots in a straight stream. The group rapidly increases in size and becomes a very large stream by September 11.									
Aug. 28.506	G	26	100	49	189	326.7	+9.6	-75.4	Sept. 5.171	I	16	62	24	87	235.4	-17.9	-65.4	
29.236	I	15	77	17	90	326.8	+9.7	-65.7	6.281	I	66	308	59	275	235.6	-18.1	-50.6	
30.285	I	30	126	24	100	327.2	+10.0	-51.4	7.583	G	76	334	49	219	237.7	-18.0	-31.3	
31.516	G	54	256	33	155	327.2	+10.1	-35.1	8.480	I	147	648	87	381	238.1	-17.9	-19.1	
Sept. 1.404	G	35	205	19	112	327.3	+10.0	-23.3	9.418	G	183	818	102	457	239.5	-17.9	-5.3	
2.517	G	55	223	28	113	327.3	+10.4	-8.6	10.600	G	345	1194	194	674	240.1	-17.4	+10.9	
3.559	G	42	209	21	105	327.4	+10.3	+5.3	11.266	I	405	1584	239	935	240.3	-17.7	+20.0	
4.402	G	40	208	21	109	327.5	+10.6	+16.5	12.321	I	354	1436	236	962	240.1	-18.0	+33.6	
5.171	I	39	180	22	101	327.7	+10.5	+26.9	13.608	G	211	983	188	888	240.6	-17.6	+51.2	
6.281	I	36	151	24	100	327.7	+10.5	+41.5	14.248	I	188	959	205	1058	239.6	-17.6	+58.7	
7.583	G	19	112	18	105	327.5	+10.7	+58.5	15.241	I	66	350	153	824	242.4	-17.7	+74.5	
8.480	I	23	82	32	115	327.4	+9.7	+70.2	Means	140	615	239.04	-17.80	...
Means	...	...	...	26	116	327.31	+10.18	...									
Group 352. Three small spots.									Group 356. A diminishing spot on September 5, 6, and 7. The group has disappeared by September 8, but three very small spots have appeared near its place by September 10.									
Sept. 2.517	G	13	74	11	69	30.3	-12.9	+54.4	Sept. 5.171	I	11	49	22	102	222.7	+24.2	-78.1	
3.559	G	0	12	0	16	27.4	-12.2	+65.3	6.281	I	8	45	9	49	222.9	+24.3	-63.3	
Means	...	...	...	6	43	28.85	-12.55	...	7.583	G	8	27	6	19	222.5	+23.9	-46.5

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 356— <i>continued.</i>									Group 359— <i>continued.</i>								
1880. ^d						°	°	°	1880. ^d						°	°	°
Sept. 8.480	I	0	0	0	0	...	...	...	Sept. 11.266	I	142	410	85	244	190.0	+21.8	-30.3
9.418	I	0	0	0	0	...	...	...	12.321	I	87	411	47	222	190.4	+22.1	-16.1
10.600	G	0	22	0	11	225.3	+22.9	-3.9	13.608	G	85	336	44	174	189.9	+22.3	+0.5
Means ...	...	...	...	6	30	223.35	+23.83	...	14.248	I	80	319	42	167	189.2	+22.2	+8.3
Group 357.									15.241	I	80	331	45	186	190.7	+22.0	+22.8
A small spot on September 7. The group rapidly increases in size, and has become a fine large stream by September 11.									16.590	G	52	280	34	184	189.0	+22.3	+38.9
Sept. 7.583	G	9	25	9	25	213.9	-17.7	-55.1	17.479	G	76	268	60	213	188.8	+22.4	+50.5
8.480	I	84	309	61	225	216.7	-16.2	-40.5	18.564	G	71	187	81	212	188.6	+22.2	+64.6
9.418	I	181	772	111	473	218.8	-16.4	-26.0	Means ...	...	...	...	64	234	189.67	+22.11	...
10.600	G	351	1249	196	694	220.8	-16.3	-8.4	Group 360.								
11.266	I	453	1775	249	975	220.8	-16.5	+0.5	A small regular spot, with occasionally some very small companions.								
12.321	I	469	1820	267	1036	221.7	-16.5	+15.2	Sept. 15.241	I	2	15	3	20	98.0	+16.4	-69.9
13.608	G	362	1690	240	1101	221.5	-16.6	+32.1	16.590	G	9	18	7	14	98.6	+16.4	-51.5
14.248	I	313	1328	230	981	221.8	-17.1	+40.9	17.479	G	11	51	7	33	98.6	+16.1	-39.7
15.241	I	188	816	191	820	223.3	-17.5	+55.4	18.564	G	22	86	12	48	99.9	+16.2	-24.1
16.590	G	76	293	157	658	224.2	-17.4	+74.1	19	...	No photograph.		(12	40	101.3	+16.3	-10.1
Means ...	...	...	...	171	699	220.35	-16.82	...	20.483	G	24	61	12	31	102.7	+16.3	+4.0
Group 358.									21.214	I	27	119	14	62	101.8	+15.3	+12.8
A small regular spot, with a small companion on September 11. The group is not seen on September 12, but has re-appeared by September 13 as two close pairs of spots.									22.530	G	3	12	2	7	105.0	+16.2	+33.3
Sept. 7.583	G	12	30	13	31	207.0	+23.0	-62.0	Means ...	...	...	...	8	32	100.74	+16.15	...
8.480	I	17	51	13	40	207.0	+23.2	-50.2	Group 361.								
9.418	I	11	48	7	32	206.1	+23.6	-38.7	A small regular spot with double nucleus, frequently with some small companions. The group is not seen on September 25 and 26.								
10.600	G	9	23	5	13	206.6	+23.4	-22.6	Sept. 15.241	I	12	35	24	68	91.0	+18.0	-76.9
11.266	I	0	37	0	20	206.5	+24.7	-13.8	16.590	G	21	79	21	78	89.7	+17.9	-60.4
12.321	I	0	0	0	0	...	...	...	17.479	G	28	82	21	62	89.8	+17.8	-48.5
13.608	G	22	50	12	27	205.9	+23.8	+16.5	18.564	G	20	112	12	68	90.1	+17.3	-33.9
14.248	I	48	179	27	103	205.2	+24.2	+24.3	19	...	No photograph.		(12	45	89.7	+17.6	-21.6
15.241	I	23	68	15	45	206.5	+24.5	+38.6	20.483	G	21	42	11	22	89.4	+17.9	-9.3
16.590	G	0	9	0	8	205.6	+24.4	+55.5	21.214	I	14	31	7	16	89.6	+17.8	+0.6
Means ...	...	...	...	9	32	206.27	+23.87	...	22.530	G	6	42	3	22	88.5	+17.6	+16.8
Group 359A.									23.285	I	0	32	0	18	89.0	+17.3	+27.3
Two small spots.									24.412	I	11	38	8	27	93.0	+17.8	+46.2
Sept. 9.418	I	18	66	9	33	248.2	+12.4	+3.4	25.436	G	0	0	0	0	...	...	...
Means ...	...	...	...	9	33	248.2	+12.4	...	26.300	I	0	0	0	0	...	...	...
Group 359.									27.407	G	0	7	0	28	94.3	+17.4	+87.0
A large regular spot, frequently with one or two companions.									Means ...	...	...	...	9	35	90.37	+17.67	...
Sept. 7.583	G	24	102	50	216	190.8	+22.4	-78.2	Group 362.								
8.480	I	85	312	109	393	189.5	+22.2	-67.7	A small spot. A second spot is seen near it on September 18. The group rapidly increases in size.								
9.418	I	109	376	94	326	190.0	+21.9	-54.8	Sept. 17.479	G	20	42	13	27	176.0	+21.3	+37.7
10.600	G	122	411	81	275	189.1	+21.5	-40.1	18.564	G	21	120	16	95	173.4	+20.8	+49.4
									19	...	No photograph.		(22	153	174.3	+21.2	+63.0
									20.483	G	15	110	29	211	175.3	+21.7	+76.6
									21.214	I	11	74	46	322	172.2	+20.7	+83.2
									Means ...	...	...	...	25	162	174.24	+21.14	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 363. A small faint spot.									Group 367. A small faint spot on September 25, not seen on September 26. The group has re-appeared as a close cluster of very small spots by September 27, and has developed by September 29 into a fine stream, consisting of a large regular spot and a great number of smaller spots.								
1880. _d Sept. 18.564	G	0	17	0	11	89.8	+25.2	-34.2	1880. _d Sept. 25.436	G	0	21	0	16	352.3	-20.9	-41.0
Means ...	...	...	...	0	11	89.8	+25.2	...	26.300	I	0	0	0	0	...	...	...
Group 364. A number of small and unstable spots in an irregular straggling stream.									Oct. 27.407								
Sept. 18.564	G	0	48	0	49	63.2	+19.4	-60.8	27.407	G	4	95	2	54	356.7	-19.8	-10.6
19	...	No photograph.		(3	39	62.6	+19.4	-48.8)	28.308	I	51	288	29	162	356.1	-19.4	+0.7
20.483	G	9	46	6	29	61.9	+19.3	-36.8	29.577	G	196	1100	114	645	355.3	-19.9	+16.6
21.214	I	51	182	29	105	61.9	+19.4	-27.1	30.304	I	287	1204	181	758	356.0	-19.8	+26.9
22.530	G	31	208	16	108	63.1	+19.5	-8.6	Oct. 1.521	G	191	1005	145	772	355.2	-19.8	+42.2
23.285	I	27	162	14	83	65.1	+19.2	+3.4	2.396	G	90	594	80	558	353.5	-20.1	+52.0
24.412	I	31	189	17	103	64.5	+19.3	+17.7	3.285	I	129	606	175	871	355.1	-20.3	+65.4
25.436	G	25	123	15	74	65.3	+19.4	+32.0	4.268	I	40	229	103	587	352.3	-21.1	+75.5
26.300	I	34	126	24	91	67.5	+19.5	+45.6	Means ...	...	...	...	83	442	354.72	-20.12	...
27.407	G	11	97	14	113	71.0	+19.0	+63.7	Group 368. A large regular spot, with occasionally one or two small companions.								
Means ...	...	...	...	14	79	64.61	+19.34	...	Sept. 24.412	I	20	64	36	115	336.4	-17.8	-70.4
Group 365. A small faint spot, not seen from September 21 to 24.									25.436	G	46	259	47	264	337.2	-18.6	-56.1
Sept. 20.483	G	0	25	0	18	53.3	+23.7	-45.4	26.300	I	43	216	33	165	339.1	-18.2	-42.8
21.214	I	0	0	0	0	...	...	...	27.407	G	50	280	31	173	340.6	-17.9	-26.7
22.530	G	0	0	0	0	...	...	...	28.308	I	96	374	55	214	341.0	-17.8	-14.4
23.285	I	0	0	0	0	...	...	...	29.577	G	78	349	43	193	341.1	-17.8	+2.4
24.412	I	0	0	0	0	...	...	...	30.304	I	76	428	43	242	341.6	-17.8	+12.5
25.436	G	0	8	0	5	57.7	+22.3	+24.4	Oct. 1.521	G	64	301	40	189	341.8	-17.3	+28.8
26.300	I	0	22	0	14	57.3	+21.4	+35.4	2.396	G	23	245	17	178	341.7	-17.5	+40.2
Means ...	...	...	...	0	5	56.10	+22.47	...	3.285	I	61	292	55	268	341.8	-17.9	+52.1
Group 366. A regular spot, followed on September 2 by two smaller spots. The group diminishes day by day and has disappeared by September 26, but has appeared by September 27 as a short stream.									4.268	I	30	12	42	170	342.3	-18.0	+65.5
Sept. 22.530	G	11	64	15	79	10.3	-19.5	-61.4	5.238	I	13	62	40	195	342.1	-18.1	+78.1
23.285	I	20	53	17	45	13.3	-19.3	-48.4	Means ...	...	...	...	40	197	340.56	-17.89	...
24.412	I	8	52	5	35	13.6	-18.7	-33.2	Group 369. Some very small spots in a close cluster. The group changes its character very rapidly, increasing in size and distinctness until it reaches the central meridian on September 29, and then as speedily diminishing again. On September 29 the four groups, Nos. 366 to 369, almost touch one another, and form an almost continuous stream lying along the 19th parallel of south latitude for more than 40°.								
25.436	G	9	27	5	16	14.8	-18.8	-18.5	Sept. 25.436	G	0	43	0	57	330.8	-19.7	-62.5
26.300	I	0	0	0	0	...	...	...	26.300	I	12	69	11	63	330.9	-19.6	-51.0
27.407	G	11	57	6	32	15.9	-18.5	+8.6	27.407	G	23	120	16	84	331.0	-19.2	-36.3
28.308	G	7	50	4	30	16.6	-19.0	+21.2	28.308	I	124	526	76	321	331.0	-19.1	-24.4
29.577	G	0	43	0	28	9.6	-19.8	+30.9	29.577	G	112	444	63	251	330.7	-18.9	-8.0
30.304	I	21	159	16	120	10.2	-19.8	+41.1	30.304	I	53	251	30	140	330.9	-19.1	+1.8
Oct. 1.521	G	2	77	2	86	12.0	-19.2	+59.0	Oct. 1.521	G	10	51	6	30	332.1	-18.5	+19.1
Means ...	...	...	...	7	47	12.92	-19.18	...	2.396	G	0	9	0	6	333.6	-18.1	+32.1
									3.285	I	3	16	2	12	329.6	-20.0	+39.9
									4.268	I	0	13	0	12	328.9	-19.6	+52.1
									Means ...	...	...	...	20	98	330.95	-19.18	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 370.									Group 373*.								
A number of small spots in a close cluster on September 26. The group increases in size and distinctness very rapidly, forming on September 29 a fine stream, the leader of which is a large regular spot with double nucleus.									A small unstable spot, f Group 373.								
1880. d						°	°	°	1880. d						°	°	°
Oct. 10 ²⁸⁴	I								Oct. 10 ²⁸⁴	I	4	15	3	12	235.4	-27.2	+38.0
11 ⁴⁸⁶	G								11 ⁴⁸⁶	G	0	4	0	5	239.9	-26.4	+58.3
Means	...	...	...	...	...	...	...	...	Means	...	...	...	2	9	237.65	-26.80	...
Group 371.									Group 374.								
Two small faint spots.									A few small unstable spots in a straggling stream. The group is not seen on October 10, but has broken out afresh by October 11.								
Oct. 1 ⁵²¹	G	9	19	5	11	287.5	+21.5	-25.5	Oct. 3 ²⁸⁵	I	11	63	14	82	225.6	-16.1	-64.1
Means	...	...	...	5	11	287.5	+21.5	...	4 ²⁶⁸	I	9	39	8	34	225.6	-15.8	-51.2
Group 372.									5 ²³⁸	I	11	36	8	25	225.5	-16.0	-38.5
A small faint spot.									6 ²⁸⁶	I	10	39	6	23	225.4	-15.7	-24.8
Oct. 7 ⁵⁷⁵	G	0	11	0	10	284.7	-18.7	+51.6	7 ⁵⁷⁵	G	17	73	9	40	224.6	-16.0	-8.5
8 ⁵⁵¹	G	0	6	0	8	285.6	-19.4	+65.3	8 ⁵⁵¹	G	0	26	0	14	225.2	-15.5	+4.9
Means	...	...	...	0	9	285.15	-19.05	...	9 ³³²	I	7	21	4	12	225.3	-14.8	+15.4
Group 373.									10 ²⁸⁴	I	0	0	0	0	...	...	...
A few small unstable spots in a compact cluster. The group is not seen on October 9, but a small spot is seen near its place on October 10.									11 ⁴⁸⁶	G	0	18	0	15	229.4	-15.3	+47.8
Oct. 6 ²⁸⁶	I	13	45	8	27	257.8	-25.3	+7.6	12 ⁴³¹	G	1	24	1	26	228.9	-15.2	+59.8
7 ⁵⁷⁵	G	23	133	15	86	256.2	-26.0	+23.1	13 ⁵⁵⁶	G	0	37	0	90	230.0	-16.3	+75.8
8 ⁵⁵¹	G	0	22	0	17	259.2	-26.7	+38.9	14 ²¹²	I	4	14	19	69	227.8	-17.6	+82.2
9 ³³²	I	0	0	0	0	...	...	...	Means	...	...	...	6	36	226.69	-15.85	...
10 ²⁸⁴	I	0	9	0	10	254.0	-26.6	+56.6	Group 375.								
Means	...	...	...	5	28	256.80	-26.15	...	A small regular spot with a small companion on October 6. The group has changed into a straggling stream of small spots by October 10.								
Group 376.									Oct. 6 ²⁸⁶	I	7	30	8	35	184.8	+21.5	-65.4
A regular spot.									7 ⁵⁷⁵	G	21	40	13	24	184.1	+21.8	-49.0
Oct. 7 ⁵⁷⁵	G	0	48	0	59	171.9	+16.9	-61.2	8 ⁵⁵¹	G	5	66	3	42	184.9	+22.7	-35.4
Means	...	...	...	0	59	171.9	+16.9	...	9 ³³²	I	44	157	25	91	185.1	+23.1	-24.8

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 377.								
A small faint spot.								
1880. _a Oct. 8 ⁵⁵ 1	G	0	8	0	10	154 ¹	+28 ⁰	-66 ²
Means ...	...	...	...	0	10	154 ¹	+28 ⁰	...
Group 378.								
A few small spots, only one of which remains on October 12. Two spots on October 13 and 14.								
Oct. 10 ²⁸ 4	I	7	56	4	31	212 ⁰	-15 ⁸	+14 ⁶
11 ⁴⁸ 6	G	9	71	6	45	212 ⁵	-15 ⁷	+30 ⁹
12 ⁴³ 1	G	0	6	0	5	214 ⁵	-15 ⁷	+45 ⁴
13 ⁵⁵ 6	G	0	48	0	51	213 ³	-14 ⁵	+59 ¹
14 ²¹ 2	I	13	39	21	60	214 ⁰	-15 ¹	+68 ⁴
Means ...	...	...	...	6	38	213 ²⁶	-15 ³⁶	...
Group 379.								
Two small spots.								
Oct. 12 ⁴³ 1	G	0	13	0	9	210 ²	+30 ³	+41 ¹
Means ...	...	...	...	0	9	210 ²	+30 ³	...
Group 380.								
A large regular spot, with occasionally a small companion.								
Oct. 12 ⁴³ 1	G	16	104	31	196	93 ¹	+23 ¹	-76 ⁰
13 ⁵⁵ 6	G	44	172	46	179	92 ⁸	+23 ²	-61 ⁴
14 ²¹ 2	I	63	300	53	254	92 ⁵	+23 ³	-53 ¹
15 ¹⁹ 7	I	65	303	44	205	92 ⁷	+23 ⁴	-39 ⁸
16 ²⁴ 9	I	63	302	37	177	92 ³	+23 ⁸	-26 ⁴
17 ²⁸ 8	I	63	311	34	168	92 ¹	+24 ¹	-12 ⁹
18 ⁵⁵ 6	G	51	257	27	136	91 ⁸	+24 ⁴	+3 ⁵
19 ²⁸ 4	I	79	267	43	145	91 ⁹	+24 ²	+13 ²
20	...	No photograph.	(37	135	91 ⁶	+24 ²	+26 ¹)	
21 ²⁸ 4	I	46	186	31	125	91 ²	+24 ²	+38 ⁹
22 ²⁹ 0	I	24	79	20	66	90 ⁹	+24 ²	+51 ⁹
23 ¹⁷ 9	I	4	26	5	30	91 ⁰	+24 ⁵	+63 ⁷
Means ...	...	...	...	34	151	91 ⁹⁹	+23 ⁸⁸	...
Group 380*.								
A few small spots, f Group 380.								
Oct. 13 ⁵⁵ 6	G	0	28	0	52	78 ³	+23 ⁰	-75 ⁹
14 ²¹ 2	I	4	38	5	49	78 ²	+23 ⁰	-67 ⁴
Means ...	...	...	...	3	51	78 ²⁵	+23 ⁰	...

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 380†.								
A few small spots, sf Group 380, and sp Group 380*. The group is not seen on October 17 or 18, but has revived again by October 19, and speedily becomes a fine large stream.								
1880. _a Oct. 15 ¹⁹ 7	I	0	10	0	7	89 ¹	+19 ⁶	-43 ⁴
16 ²⁴ 9	I	0	12	0	7	89 ¹	+20 ³	-29 ⁶
17 ²⁸ 8	I	0	0	0	0	...	...	...
18 ⁵⁵ 6	G	0	0	0	0	...	...	...
19 ²⁸ 4	I	97	315	50	165	90 ³	+18 ²	+11 ⁶
20	...	No photograph.	(71	312	91 ²	+18 ⁵	+25 ⁷)	
21 ²⁸ 4	I	140	691	93	459	92 ¹	+18 ⁹	+39 ⁸
22 ²⁹ 0	I	76	346	66	300	93 ⁴	+18 ⁵	+54 ⁴
23 ¹⁷ 9	I	40	245	52	315	95 ⁰	+18 ⁰	+67 ⁷
24 ²⁸ 3	I	12	42	43	151	96 ¹	+17 ⁶	+83 ³
Means ...	...	...	...	38	172	92 ⁰⁴	+18 ⁷⁰	...
Group 380‡.								
Two small spots, p Group 380.								
Oct. 16 ²⁴ 9	I	6	35	3	19	108 ⁷	+24 ³	-10 ⁰
Means ...	...	...	...	3	19	108 ⁷	+24 ³	...
Group 381.								
A regular spot, with occasionally one or two small companions.								
Oct. 14 ²¹ 2	I	9	44	26	128	64 ¹	+21 ²	-81 ⁵
15 ¹⁹ 7	I	9	59	12	86	61 ⁷	+21 ¹	-70 ⁸
16 ²⁴ 9	I	22	98	20	90	62 ³	+21 ⁴	-56 ⁴
17 ²⁸ 8	I	31	119	21	81	64 ⁰	+21 ⁴	-41 ⁰
18 ⁵⁵ 6	G	32	126	18	72	63 ⁹	+21 ⁵	-24 ⁴
19 ²⁸ 4	I	50	139	27	75	64 ¹	+21 ²	-14 ⁶
20	...	No photograph.	(26	80	63 ⁸	+21 ¹	-1 ⁷)	
21 ²⁸ 4	I	49	161	26	85	63 ⁵	+21 ⁰	+11 ²
22 ²⁹ 0	I	30	102	17	58	63 ⁶	+20 ⁸	+24 ⁶
23 ¹⁷ 9	I	27	73	17	46	62 ⁸	+21 ²	+35 ⁵
24 ²⁸ 3	I	12	25	10	20	63 ⁴	+21 ²	+50 ⁶
25 ³⁸ 6	I	0	12	0	14	63 ⁰	+21 ⁵	+64 ⁸
Means ...	...	...	...	18	70	63 ³⁵	+21 ²²	...
Group 382.								
A small faint spot.								
Oct. 18 ⁵⁵ 6	G	0	15	0	11	44 ⁵	+24 ⁰	-43 ⁸
Means ...	...	...	...	0	11	44 ⁵	+24 ⁰	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 382A.								
A large composite spot, with a number of companions, forming an irregular stream.								
1880. _d								
Oct. 19 ²⁸⁴	I	4	103	19	463	357.5	-20.3	-81.2
20	...	No photograph.	(40	429	357.8	-20.6	-67.7)	
21 ²⁸⁴	I	64	407	62	396	358.1	-20.9	-54.2
22 ²⁹⁰	I	93	396	69	297	358.0	-21.5	-41.0
23 ¹⁷⁹	I	139	696	90	449	358.1	-21.9	-29.2
24 ²⁸³	I	165	729	95	423	358.1	-21.9	-14.7
25 ³⁸⁶	I	108	530	61	297	357.9	-21.8	-0.3
26 ²⁸⁴	I	72	273	41	156	358.4	-21.5	+12.0
27 ³⁰⁵	I	78	322	48	199	358.7	-20.9	+25.8
28 ²⁸⁵	I	63	195	45	141	359.8	-20.4	+39.8
29 ²⁸⁵	I	16	44	15	42	1.4	-19.7	+54.6
Means	...	...	...	53	299	358.54	-21.03	...
Group 382B.								
A number of spots in a straight stream, p Group 381.								
Oct. 21 ²⁸⁴	I	35	161	19	87	69.6	+18.7	+17.3
22 ²⁹⁰	I	79	376	47	224	70.2	+18.6	+31.2
23 ¹⁷⁹	I	109	504	77	355	70.8	+18.7	+43.5
24 ²⁸³	I	96	449	92	432	71.5	+18.2	+58.7
25 ³⁸⁶	I	45	153	78	263	72.1	+17.7	+73.9
26 ²⁸⁴	I	10	42	47	199	71.4	+18.2	+85.0
Means	...	...	...	60	260	70.93	+18.35	...
Group 382C.								
A small spot.								
Oct. 22 ²⁹⁰	I	0	26	0	40	327.3	+16.1	-71.7
23 ¹⁷⁹	I	4	17	4	17	327.5	+15.8	-59.8
24 ²⁸³	I	8	24	6	17	327.7	+16.0	-45.1
Means	...	...	...	3	25	327.5	+15.97	...
Group 382D.								
Two small spots, n/ Group 382A.								
Oct. 27 ³⁰⁵	I	29	90	16	50	350.9	-12.9	+18.0
Means	...	...	...	16	50	350.9	-12.9	...
Group 382E.								
A few small spots in a short stream.								
Oct. 27 ³⁰⁵	I	3	19	2	11	302.5	+11.6	-30.4
28 ²⁸⁵	I	9	47	5	25	302.5	+11.6	-17.5
29 ²⁸⁵	I	36	111	18	56	304.2	+11.2	-2.6
Means	...	...	...	8	31	303.07	+11.47	...
Group 382F.								
Two small spots, p the place of Group 382C.								
1880. _d								
Oct. 29 ²⁸⁵	I	10	49	6	29	335.3	+18.1	+28.5
Means	...	...	...	6	29	335.3	+18.1	...
Group 383.								
Three or four small spots in a compact cluster.								
Oct. 30 ⁵⁶³	G	0	41	0	40	235.8	-22.6	-54.2
31 ²⁹³	I	29	59	23	47	235.5	-22.7	-44.8
Nov. 1 ²⁸³	I	15	60	10	40	234.8	-22.8	-32.5
2 ⁴⁷⁸	G	0	24	0	14	234.7	-22.4	-16.8
Means	...	...	...	8	35	235.2	-22.63	...
Group 383A.								
A small spot.								
Nov. 1 ²⁸³	I	0	32	0	31	326.1	+21.6	+58.8
Means	...	...	...	0	31	326.1	+21.6	...
Group 383B.								
A small spot.								
Nov. 1 ²⁸³	I	3	9	2	7	220.0	-9.1	-47.3
Means	...	...	...	2	7	220.0	-9.1	...
Group 384.								
A number of small unstable spots in a long irregular stream.								
Nov. 1 ²⁸³	I	48	155	30	96	301.7	+16.3	+34.4
2 ⁴⁷⁸	G	44	218	35	179	303.3	+16.3	+51.8
3 ⁴⁶⁹	G	9	59	12	68	302.8	+15.2	+64.3
Means	...	...	...	26	114	302.60	+15.93	...
Group 385.								
A small spot on October 31, n of Group 383. New spots form behind the first on the succeeding days, making a scattered stream.								
Oct. 31 ²⁹³	I	12	28	9	21	236.0	-17.0	-44.3
Nov. 1 ²⁸³	I	3	26	2	16	236.7	-17.1	-30.6
2 ⁴⁷⁸	G	20	190	11	105	236.4	-16.3	-15.1
3 ⁴⁶⁹	G	43	179	23	97	234.6	-17.1	-3.9
4 ⁵⁷⁵	G	36	119	20	65	234.2	-17.3	+10.3
5 ²⁵⁰	I	33	110	19	62	233.8	-17.2	+18.9
Means	...	...	...	14	61	235.28	-17.00	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 386. A small regular spot.									Group 392. Two spots, of which the preceding rapidly increases in size, and coalesces with the following spot, to form on November 15 one very large spot very irregular in form. It diminishes in size after November 15, and breaks up into several fragments.								
1880. _d						°	°	°	1880. _d						°	°	°
Nov. 1 ^h 28 ^m 3	I	9	35	13	49	201°0	-19°1	-66°3	Nov. 13 ^h 28 ^m 3	I	17	71	15	64	54°5	+21°2	-54°6
2 ^h 47 ^m 8	G	5	24	4	21	200°8	-18°4	-50°7	14 ^h 34 ^m 4	I	103	324	69	220	56°2	+21°9	-38°8
3 ^h 46 ^m 9	G	7	34	5	24	200°0	-18°7	-38°5	15 ^h 30 ^m 0	G	291	934	171	548	56°5	+21°7	-26°0
4 ^h 57 ^m 5	G	12	35	7	21	199°9	-18°7	-24°0	16 ^h 44 ^m 8	G	126	775	68	419	57°0	+22°0	-10°4
5 ^h 25 ^m 0	I	12	34	7	19	200°2	-18°7	-14°7	17 ^h 29 ^m 5	I	164	662	88	356	56°8	+21°9	+0°6
									18 ^h 07 ^m 6	Me	40	520	22	283	56°0	+22°5	+10°1
Means	...	...	...	7	27	200°38	-18°72	...	19 ^h 54 ^m 5	G	64	375	39	230	56°3	+22°2	+29°8
Group 387. A small spot.									20 ^h 55 ^m 8	G	32	328	23	238	55°9	+22°0	+42°7
Nov. 2 ^h 47 ^m 8	G	0	7	0	9	185°4	-14°8	-66°1	21	...	No photograph.		(42	240	55°6	+22°0	+54°4
3 ^h 46 ^m 9	G	3	11	3	10	185°0	-15°7	-53°5	22 ^h 38 ^m 4	I	47	186	61	242	55°2	+22°0	+66°1
4 ^h 57 ^m 5	G	0	7	0	5	185°0	-15°8	-38°9	23 ^h 30 ^m 9	I	22	41	60	111	56°2	+21°9	+79°3
Means	...	...	...	1	8	185°13	-15°43	...	Means	...	...	...	60	268	56°02	+21°94	...
Group 388. A small spot.									Group 393. Two spots on November 18. The group has greatly increased by November 19, and consists of two large regular spots with one or two very small companions.								
Nov. 4 ^h 57 ^m 5	G	4	14	2	8	206°7	+22°4	-17°2	Nov. 18 ^h 07 ^m 6	Me	0	127	0	66	52°6	-9°4	+6°7
Means	...	...	...	2	8	206°7	+22°4	...	19 ^h 54 ^m 5	G	81	540	48	315	55°0	-9°9	+28°5
Group 389. Two small faint spots.									20 ^h 55 ^m 8	G	103	592	72	411	55°5	-9°7	+42°3
Nov. 8 ^h 40 ^m 4	G	0	15	0	30	245°0	+29°1	+71°7	21	...	No photograph.		(80	342	55°6	-9°6	+54°5
Means	...	...	...	0	30	245°0	+29°1	...	22 ^h 38 ^m 4	I	68	212	87	274	55°7	-9°4	+66°6
Group 390. A small spot.									23 ^h 30 ^m 9	I	25	101	65	278	56°2	-9°4	+79°3
Nov. 9 ^h 40 ^m 4	G	0	19	0	11	136°1	-12°7	-24°1	Means	...	...	...	59	281	55°10	-9°57	...
Means	...	...	...	0	11	136°1	-12°7	...	Group 394. A few small spots in a short stream.								
Group 391. Some very small spots in a compact cluster.									Nov. 17 ^h 29 ^m 5	I	60	157	33	86	38°8	-13°2	-17°4
Nov. 9 ^h 40 ^m 4	G	3	16	2	11	116°6	+9°1	-43°6	18 ^h 07 ^m 6	Me	30	238	16	125	37°5	-13°7	-8°4
Means	...	...	...	2	11	116°6	+9°1	...	19 ^h 54 ^m 5	G	43	287	23	153	39°4	-13°2	+12°9
Group 392A. A small spot.									20 ^h 55 ^m 8	G	78	230	45	133	39°2	-13°0	+26°0
Nov. 14 ^h 34 ^m 4	I	0	6	0	7	32°0	-15°8	-63°0	Means	...	...	...	29	124	38°73	-13°28	...
Means	...	...	...	0	7	32°0	-15°8	...	Group 395. A small faint spot; it is not seen from November 20 to November 24, nor on November 26.								
									Nov. 19 ^h 54 ^m 5	G	0	8	0	6	342°7	+20°8	-43°8
									20 ^h 55 ^m 8	G	0	0	0	0	...	...	...
									21	...	No photograph.		(0	0	...	...	...
									22 ^h 38 ^m 4	I	0	0	0	0	...	...	...
									23 ^h 30 ^m 9	I	0	0	0	0	...	...	...
									24 ^h 30 ^m 2	I	0	0	0	0	...	...	...
									25 ^h 51 ^m 5	G	9	42	6	27	341°7	+20°8	+33°9
									26 ^h 18 ^m 2	I	0	0	0	0	...	...	...
									27 ^h 55 ^m 2	G	0	14	0	15	342°1	+21°4	+61°1
									Means	...	...	...	1	5	342°17	+21°00	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 396.								
A few small spots in a short stream.								
1880. _d						°	°	°
Nov. 24.302	I	9	44	10	46	264.3	-17.0	-59.5
25.515	G	48	154	35	112	264.7	-17.4	-43.1
26.182	I	52	174	33	113	264.1	-18.0	-34.9
27.552	G	6	37	3	20	267.2	-17.4	-13.8
Means ...	...	...	...	20	73	265.08	-17.45	...
Group 397.								
A very fine stream, the principal members of which are two very large composite spots on November 25. A great number of small spots form on all sides of the two principal spots. The following spot of the two has broken up by November 27, and rapidly diminishes on the succeeding days.								
Nov. 24.302	I	149	653	247	1074	252.4	+22.0	-71.4
25.515	G	216	1334	198	1238	252.6	+21.7	-55.2
26.182	I	343	1871	269	1449	252.4	+21.3	-46.6
27.552	G	300	2015	182	1215	253.1	+20.8	-27.9
28.284	I	521	2123	293	1191	253.9	+20.8	-17.4
29.403	G	436	1854	233	989	253.9	+20.6	-2.7
30.488	G	236	1347	129	738	254.6	+20.5	+12.3
Dec. 1.185	I	201	1232	115	704	255.0	+19.9	+21.9
2	...	No photograph.	(97	575	255.6	+20.0	+35.6)	
3.185	I	96	544	79	446	256.1	+20.1	+49.3
4.288	I	71	433	83	504	255.1	+19.8	+62.9
Means ...	...	...	...	175	920	254.06	+20.68	...
Group 398.								
A small faint spot with a faint companion on November 28.								
Nov. 25.515	G	0	10	0	20	234.2	-24.4	-73.6
26.182	I	3	31	4	40	235.0	-24.5	-64.0
27.552	G	9	20	7	16	234.9	-24.6	-46.1
28.284	I	3	31	2	21	235.9	-24.2	-35.4
29.403	G	8	14	5	8	236.2	-24.4	-20.4
Means ...	...	...	...	4	21	235.24	-24.42	...
Group 399.								
Two small spots very close together.								
Nov. 27.552	G	0	15	0	15	337.4	-21.9	+56.4
Means ...	...	...	...	0	15	337.4	-21.9	...
Group 400.								
A large spot, followed by a number of small spots in a long stream.								
1880. _d						°	°	°
Dec. 3.185	I	56	326	82	571	135.2	-14.4	-71.6
4.288	I	102	675	109	675	133.5	-14.0	-58.7
5	...	No photograph.	(114	627	133.3	-14.0	-46.5)	
6.187	I	190	929	120	579	133.0	-13.9	-34.2
7.186	I	194	1113	107	606	135.1	-13.9	-18.9
8	...	No photograph.	(97	600	135.8	-14.0	-4.4)	
9.284	I	166	1136	87	595	136.5	-14.0	+10.1
10.479	G	155	926	89	531	136.7	-13.8	+26.0
11.465	G	182	807	120	532	136.8	-13.1	+39.1
12.275	I	110	566	88	447	136.5	-13.7	+49.6
13.324	I	99	430	111	481	136.1	-13.8	+62.9
Means ...	...	...	...	102	568	135.32	-13.87	...
Group 400A.								
A small spot, <i>np</i> Group 397.								
Dec. 4.288	I	0	9	0	15	267.2	+23.2	+75.0
Means ...	...	...	...	0	15	267.2	+23.2	...
Group 400B.								
A number of spots, mostly small, in a straight stream.								
Dec. 6.187	I	44	256	24	138	155.4	+18.3	-11.8
7.186	I	61	252	32	133	156.2	+18.0	+2.2
Means ...	...	...	...	28	136	155.80	+18.15	...
Group 400C.								
A pair of small spots.								
Dec. 7.186	I	21	74	20	70	209.9	+19.1	+55.9
Means ...	...	...	...	20	70	209.9	+19.1	...
Group 400D.								
A small spot, <i>f</i> Group 400.								
Dec. 7.186	I	3	24	2	17	112.3	-16.8	-41.7
Means ...	...	...	...	2	17	112.3	-16.8	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 410D.									Group 412—continued.								
A pair of small spots on January 23. The group quickly expands into a fine stream, of which the first and last spots are the principal members. The leader becomes a large regular spot.																	
1881. d									1881. d								
Jan. 23 ¹⁵⁹	I	12	60	7	34	231.9	-19.4	-23.5	Feb. 1 ²⁸⁷	I	229	934	133	547	165.6	-13.3	+30.4
24 ²⁸⁶	I	114	456	59	237	232.8	-19.1	-7.8	2	...	No photograph.	(109	449	165.7	-13.3	+43.7)	
25 ¹⁷⁵	I	193	893	100	463	234.0	-18.6	+5.1	3 ²⁸⁸	I	94	391	85	352	165.7	-13.2	+56.9
26 ³⁰⁷	I	439	1315	239	724	234.3	-18.4	+20.4	4 ²⁷⁷	I	69	215	105	324	167.1	-12.5	+71.3
27 ¹⁷²	I	337	1156	204	706	235.9	-18.1	+33.4	Means	...	...	...	...	117	418	165.77	-13.04
28 ¹⁷⁵	I	228	911	171	694	237.6	-18.3	+48.3									
29 ¹⁹⁰	I	182	651	205	725	239.9	-18.1	+63.9									
30 ¹⁹³	I	86	337	164	639	238.6	-18.5	+75.8									
Means	...	...	...	144	528	235.63	-18.56	...									
Group 410E.									Group 413.								
One or two small spots.									A regular spot with a small companion on January 30.								
Jan. 24 ²⁸⁶	I	0	72	0	91	173.6	-25.1	-67.0	Jan. 28 ¹⁷⁵	I	3	22	6	42	113.2	-16.6	-76.1
25 ¹⁷⁵	I	0	60	0	52	174.6	-24.2	-54.3	29 ¹⁹⁰	I	31	109	32	112	114.3	-16.1	-61.7
26 ³⁰⁷	I	0	22	0	15	174.6	-24.2	-39.3	30 ¹⁹³	I	35	108	26	81	114.8	-17.0	-48.0
27 ¹⁷²	I	13	22	8	14	170.7	-26.2	-31.8	31 ⁴⁵²	G	21	96	12	56	116.2	-16.6	-30.0
Means	...	...	...	2	43	173.38	-24.93	...	Feb. 1 ²⁸⁷	I	24	58	13	31	117.0	-16.6	-18.2
									2	...	No photograph.	(9	22	117.4	-16.5	-4.6)	
									3 ²⁸⁸	I	12	25	6	13	117.7	-16.4	+8.9
									4 ²⁷⁷	I	9	27	5	15	118.2	-16.2	+22.4
									Means	...	...	...	...	14	47	116.10	-16.50
Group 410F.									Group 414.								
A stream of spots, mostly small.									A small faint spot.								
Jan. 26 ³⁰⁷	I	0	25	0	14	228.1	+14.4	+14.2	Jan. 29 ¹⁹⁰	I	0	13	0	16	108.6	-16.4	-67.4
27 ¹⁷²	I	69	164	41	98	229.0	+14.4	+26.5	30 ¹⁹³	I	4	15	3	13	108.6	-15.4	-54.2
28 ¹⁷⁵	I	67	128	47	89	228.8	+14.1	+39.5	31 ⁴⁵²	G	0	12	0	8	107.1	-14.5	-39.1
Means	...	...	...	29	67	228.63	+14.30	...	Means	...	...	...	...	1	12	108.10	-15.43
Group 411.									Group 415.								
A short compact stream of irregular spots.									A fine stream of the usual type, the first and last spots being the largest and most stable. The leader spot alone remains by February 10.								
Jan. 28 ¹⁷⁵	I	86	231	50	133	168.1	+15.1	-21.2	Jan. 31 ⁴⁵²	G	8	37	21	92	70.5	+18.8	-75.7
29 ¹⁹⁰	I	225	795	122	431	169.3	+15.3	-6.7	Feb. 1 ²⁸⁷	I	31	92	40	120	72.0	+19.3	-63.2
30 ¹⁹³	I	255	1015	138	549	169.2	+15.0	+6.4	2	...	No photograph.	(103	395	71.1	+19.2	-50.9)	
31 ⁴⁵²	G	77	617	45	360	168.8	+15.2	+22.6	3 ²⁸⁸	I	228	933	167	669	70.2	+19.0	-38.6
Feb. 1 ²⁸⁷	I	103	294	67	189	168.5	+14.5	+33.3	4 ²⁷⁷	I	242	1191	151	737	70.4	+19.2	-25.4
Means	...	...	...	84	332	168.78	+15.02	...	5 ⁴¹⁹	G	226	1086	129	618	70.5	+19.4	-10.2
									6 ¹⁶⁸	I	199	937	112	525	70.6	+19.3	-0.3
									7 ²⁷³	I	232	908	134	525	71.1	+19.0	+14.7
									8 ³²⁸	I	128	766	82	497	73.1	+19.1	+30.6
									9 ⁴⁴⁶	G	112	516	90	415	73.2	+18.7	+45.4
									10 ⁵⁴⁶	G	36	323	41	371	73.2	+18.4	+59.9
									11 ¹²⁵	I	46	155	71	238	73.0	+18.6	+67.4
									Means	...	...	...	...	95	434	71.58	+19.00
Group 412.																	
Two clusters, each very compact, and composed of irregular spots.																	
Jan. 29 ¹⁹⁰	I	123	301	64	155	164.9	-13.0	-11.1									
30 ¹⁹³	I	406	1015	205	515	165.5	-13.1	+2.7									
31 ⁴⁵²	G	222	1083	119	581	165.9	-12.9	+19.7									

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of.		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of.		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 415A. A pair of very small spots.									Group 419—continued.									
1881. _d						°	°	°	1881. _d						°	°	°	
Feb. 3 ²⁸ 88	I	5	29	3	16	111°0	-32°3	+ 2°2	Feb. 10 ⁵⁴ 6	G	100	465	58	269	353°5	+15°7	-19°8	
									11 ¹² 5	I	148	477	82	265	353°9	+15°9	-11°7	
									12 ⁴⁷ 5	G	92	456	50	249	353°4	+15°7	+ 5°5	
									13 ¹⁴ 6	I	117	477	66	268	353°6	+15°9	+14°5	
									14 ³⁴ 1	I	93	390	59	247	354°4	+15°9	+31°1	
									15 ³¹ 3	I	93	281	70	211	353°5	+16°2	+43°0	
									16 ³⁶ 1	I	62	172	63	174	353°3	+16°2	+56°6	
									17 ²⁵ 6	I	16	77	25	123	353°5	+16°0	+68°5	
Means ...	...	...	...	3	16	111°0	-32°3	...	Means ...	...	...	...	65	256	354°00	+15°92	...
Group 416. A small faint spot on February 5. The group rapidly increases in size after February 6.									Group 420. A close pair of small faint spots.									
Feb. 5 ⁴⁹ 1	G	7	22	5	15	112°9	+21°7	+32°2	Feb. 9 ⁴⁴ 6	G	0	14	0	12	339°3	+17°9	-48°5	
6 ¹⁶ 8	I	9	15	7	12	114°3	+21°4	+43°4										
7 ²⁷ 3	I	124	283	139	318	114°7	+21°5	+58°3										
8 ³² 8	I	53	165	128	389	116°7	+21°7	+74°2										
Means ...	...	...	...	70	184	114°65	+21°58	...	Means ...	...	...	...	0	12	339°3	+17°9	...
Group 417. A few spots, mostly small and unstable, in an irregular stream. The leader spot is the largest and most stable.									Group 421. A small faint spot.									
Feb. 6 ¹⁶ 8	I	13	29	8	18	42°3	+18°0	-28°6	Feb. 9 ⁴⁴ 6	G	0	7	0	9	319°6	-19°8	-68°2	
7 ²⁷ 3	I	67	202	38	115	42°9	+17°9	-13°5										
8 ³² 8	I	62	128	34	71	44°4	+18°3	+1°9										
9 ⁴⁴ 6	G	17	135	10	77	42°3	+17°5	+14°5										
10 ⁵⁴ 6	G	17	56	11	36	43°9	+17°9	+30°6										
11 ¹² 5	I	41	133	29	95	44°2	+18°2	+38°6										
12 ⁴⁷ 5	G	27	98	26	96	42°6	+18°0	+54°7										
13 ¹⁴ 6	I	12	47	16	62	43°1	+18°8	+64°0										
Means ...	...	...	...	22	71	43°21	+18°08	...									
Group 418. A few very small faint spots. Only the leader remains on February 11.									Group 422. Two small spots. Only one of them is seen on February 13.									
Feb. 9 ⁴⁴ 6	G	11	30	6	17	33°0	+20°7	+ 5°2	Feb. 12 ⁴⁷ 5	G	22	62	13	35	321°9	-20°3	-26°0	
10 ⁵⁴ 6	G	16	39	10	24	35°0	+20°8	+21°7	13 ¹⁴ 6	I	24	38	13	20	323°0	-19°3	-16°1	
11 ¹² 5	I	32	92	21	61	36°8	+20°8	+31°2	14 ³⁴ 1	I	10	56	5	29	321°5	-20°2	- 1°8	
12 ⁴⁷ 5	G	11	20	10	18	37°3	+21°0	+49°4	Means	10	28	322°13	-19°93	...
Means ...	...	...	...	12	30	35°53	+20°83	...									
Group 419. A large regular spot, with a small companion on February 8.									Group 423. A large regular spot.									
Feb. 6 ¹⁶ 8	I	32	142	77	346	355°0	+16°2	-75°9	Feb. 14 ³⁴ 1	I	10	47	24	118	248°7	+19°7	-74°6	
7 ²⁷ 3	I	86	231	100	269	355°3	+15°7	-61°1	15 ³¹ 3	I	31	93	42	127	246°4	+20°0	-64°1	
8 ³² 8	I	92	461	76	382	354°5	+15°8	-48°0	16 ³⁶ 1	I	31	140	28	127	246°3	+20°0	-50°4	
9 ⁴⁴ 6	G	90	415	59	271	354°1	+15°8	-33°7	17 ²⁵ 6	I	38	166	28	122	245°9	+20°1	-39°1	
									18 ²⁵ 3	I	53	229	33	143	245°4	+19°9	-26°4	
									19 ²⁶ 1	I	46	248	27	144	244°8	+20°0	-13°7	
									20 ²⁷ 0	I	53	186	30	105	244°6	+20°2	- 0°6	
									21 ⁴⁰ 9	I	50	202	29	118	244°8	+20°4	+14°5	
									22 ⁰⁹ 7	Me	31	152	19	93	243°9	+20°3	+22°7	
									23 ¹⁶ 7	I	47	155	33	110	243°7	+19°8	+36°7	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 423—continued.									Group 425—continued.								
1881. _a						°	°	°	1881. _a						°	°	°
Feb. 24 ^h 31 ^m 6 ^s	I	31	137	29	130	244 [°] 1'	+20 [°] 3'	+52 [°] 2'	Feb. 22 ^h 09 ^m 7 ^s	Me	0	264	0	145	198 [°] 8'	-16 [°] 1'	-22 [°] 4'
25 ^h 42 ^m 3 ^s	I	32	107	46	155	243 [°] 0'	+20 [°] 0'	+65 [°] 7'	23 ^h 16 ^m 7 ^s	I	71	177	36	91	198 [°] 2'	-16 [°] 0'	-8 [°] 8'
26 ^h 51 ^m 2 ^s	G	2	12	7	50	243 [°] 4'	+20 [°] 2'	+80 [°] 3'	24 ^h 31 ^m 6 ^s	I	56	103	29	53	201 [°] 3'	-15 [°] 9'	+9 [°] 4'
									25 ^h 42 ^m 3 ^s	I	42	109	24	63	205 [°] 9'	-15 [°] 6'	+28 [°] 6'
Means ...	...	...	...	29	119	245 [°] 0'	+20 [°] 07'	...	26 ^h 51 ^m 2 ^s	G	14	40	10	28	207 [°] 3'	-15 [°] 4'	+44 [°] 3'
									27 ^h 10 ^m 7 ^s	I	12	31	10	26	208 [°] 9'	-15 [°] 2'	+53 [°] 8'
Group 424. A large regular spot.									Means ...	...	...	...	22	74	201 [°] 89'	-15 [°] 93'	...
Group 424. A large regular spot.									Group 426. A regular spot, with a small companion on February 23.								
Feb. 14 ^h 34 ^m 1 ^s	I	25	77	70	220	242 [°] 3'	-20 [°] 1'	-81 [°] 0'	Feb. 20 ^h 27 ^m 0 ^s	I	22	110	31	153	175 [°] 1'	-14 [°] 1'	-70 [°] 1'
15 ^h 31 ^m 3 ^s	I	68	218	92	294	241 [°] 2'	-19 [°] 8'	-69 [°] 3'	21 ^h 40 ^m 9 ^s	I	37	109	32	94	175 [°] 1'	-14 [°] 4'	-55 [°] 2'
16 ^h 36 ^m 1 ^s	I	55	264	49	234	241 [°] 2'	-19 [°] 8'	-55 [°] 5'	22 ^h 09 ^m 7 ^s	Me	0	75	0	55	174 [°] 3'	-14 [°] 6'	-46 [°] 9'
17 ^h 25 ^m 6 ^s	I	72	390	50	273	241 [°] 1'	-19 [°] 9'	-43 [°] 9'	23 ^h 16 ^m 7 ^s	I	47	144	28	86	174 [°] 6'	-14 [°] 7'	-32 [°] 4'
18 ^h 25 ^m 3 ^s	I	124	467	74	278	240 [°] 7'	-20 [°] 4'	-31 [°] 1'	24 ^h 31 ^m 6 ^s	I	47	125	25	66	174 [°] 6'	-15 [°] 2'	-17 [°] 3'
19 ^h 26 ^m 1 ^s	I	124	529	67	286	240 [°] 4'	-20 [°] 3'	-18 [°] 1'	25 ^h 42 ^m 3 ^s	I	37	134	19	68	175 [°] 2'	-15 [°] 3'	-1 [°] 9'
20 ^h 27 ^m 0 ^s	I	108	498	56	258	240 [°] 2'	-20 [°] 3'	-5 [°] 0'	26 ^h 51 ^m 2 ^s	G	17	37	9	19	174 [°] 6'	-15 [°] 4'	+11 [°] 6'
21 ^h 40 ^m 9 ^s	I	115	501	60	261	240 [°] 3'	-20 [°] 5'	+7 [°] 0'	27 ^h 10 ^m 7 ^s	I	19	24	10	13	174 [°] 6'	-15 [°] 4'	+19 [°] 5'
22 ^h 09 ^m 7 ^s	Me	76	403	41	218	239 [°] 6'	-20 [°] 4'	+18 [°] 4'	Means ...	...	...	...	19	69	174 [°] 76'	-14 [°] 89'	...
23 ^h 16 ^m 7 ^s	I	140	526	75	283	239 [°] 5'	-20 [°] 8'	+32 [°] 5'	Group 426B. A cluster of small spots.								
24 ^h 31 ^m 6 ^s	I	53	406	39	301	239 [°] 2'	-20 [°] 4'	+47 [°] 3'	Feb. 21 ^h 40 ^m 9 ^s	I	25	85	14	48	221 [°] 0'	+18 [°] 0'	-9 [°] 3'
25 ^h 42 ^m 3 ^s	I	59	219	61	226	239 [°] 1'	-20 [°] 6'	+61 [°] 8'	22 ^h 09 ^m 7 ^s	Me	0	89	0	49	220 [°] 8'	+18 [°] 2'	-0 [°] 4'
26 ^h 51 ^m 2 ^s	G	31	113	59	214	239 [°] 2'	-20 [°] 3'	+76 [°] 1'	23 ^h 16 ^m 7 ^s	I	3	29	2	17	221 [°] 6'	+16 [°] 9'	+14 [°] 6'
27 ^h 10 ^m 7 ^s	I	16	72	47	217	237 [°] 7'	-20 [°] 3'	+82 [°] 6'	Means ...	...	...	...	5	38	221 [°] 13'	+17 [°] 70'	...
Means ...	...	...	...	60	255	240 [°] 12'	-20 [°] 28'	...	Group 427. A regular spot, with several small faint attendants.								
Group 424A. A few unstable spots in a short irregular stream.									Feb. 24 ^h 31 ^m 6 ^s	I	28	63	67	150	117 [°] 8'	+21 [°] 9'	-74 [°] 1'
Feb. 16 ^h 36 ^m 1 ^s	I	34	106	22	70	336 [°] 5'	-20 [°] 5'	+39 [°] 8'	25 ^h 42 ^m 3 ^s	I	12	44	15	53	117 [°] 2'	+22 [°] 0'	-60 [°] 1'
17 ^h 25 ^m 6 ^s	I	75	147	59	116	335 [°] 5'	-20 [°] 6'	+50 [°] 5'	26 ^h 51 ^m 2 ^s	G	21	73	18	62	116 [°] 6'	+21 [°] 9'	-46 [°] 4'
18 ^h 25 ^m 3 ^s	I	59	125	61	133	336 [°] 5'	-20 [°] 7'	+64 [°] 7'	27 ^h 10 ^m 7 ^s	I	22	44	16	32	117 [°] 1'	+21 [°] 7'	-38 [°] 0'
19 ^h 26 ^m 1 ^s	I	9	34	16	67	335 [°] 4'	-20 [°] 7'	+76 [°] 9'	28 ^h 21 ^m 2 ^s	I	0	54	0	34	116 [°] 1'	+22 [°] 9'	-24 [°] 6'
Means ...	...	...	...	40	97	335 [°] 98'	-20 [°] 63'	...	Mar. 1 ^h 28 ^m 3 ^s	I	22	56	13	33	115 [°] 5'	+23 [°] 3'	-11 [°] 0'
Group 424B. A few small spots in a sparse stream.									Means ...	...	...	...	22	61	116 [°] 72'	+22 [°] 28'	...
Group 425. A number of spots, mostly small, in a straight stream.									Group 427A. A spot only seen close to the West limb.								
Feb. 19 ^h 26 ^m 1 ^s	I	6	22	6	21	198 [°] 7'	-16 [°] 7'	-59 [°] 8'	Feb. 27 ^h 10 ^m 7 ^s	I	9	31	11	37	216 [°] 9'	+15 [°] 7'	+61 [°] 8'
20 ^h 27 ^m 0 ^s	I	16	49	11	36	199 [°] 1'	-16 [°] 4'	-46 [°] 1'	Means ...	...	...	...	11	37	216 [°] 9'	+15 [°] 7'	...
21 ^h 40 ^m 9 ^s	I	117	342	69	203	198 [°] 8'	-16 [°] 1'	-34 [°] 5'									

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 435.								
A large regular spot, followed by a number of small spots at a considerable distance.								
1881. _a								
Mar. 12 ³⁹ 5	I	111	277	58	144	328.9	-17.2	-11.2
13 ¹⁶ 4	I	103	642	53	329	328.3	-17.9	-1.6
14 ⁴⁶ 4	G	108	614	58	329	330.4	-18.4	+17.6
15 ⁵¹ 6	G	69	435	42	262	331.7	-18.3	+32.7
16 ⁴³ 0	G	76	335	55	239	332.1	-18.7	+45.1
17 ⁴⁶ 5	G	33	199	32	193	333.0	-18.8	+59.7
18 ⁵⁴ 4	G	28	111	49	192	333.5	-19.2	+74.4
Means	...	...	...	50	241	331.13	-18.36	...
Group 436.								
A compact cluster, composed of a number of small spots. The group opens out, and the leading spot increases in size, whilst the following spots diminish.								
Mar. 12 ³⁹ 5	I	0	16	0	28	265.1	-15.8	-75.0
13 ¹⁶ 4	I	45	155	53	188	263.1	-16.4	-66.8
14 ⁴⁶ 4	G	75	536	56	409	263.6	-16.8	-49.2
15 ⁵¹ 6	G	182	945	111	582	262.3	-16.4	-36.7
16 ⁴³ 0	G	268	1393	146	761	265.3	-16.4	-21.7
17 ⁴⁶ 5	G	277	1128	142	579	266.7	-16.3	-6.6
18 ⁵⁴ 4	G	217	1217	112	627	267.9	-16.2	+8.8
19 ⁵⁴ 8	G	173	1026	96	567	268.8	-16.5	+23.0
20 ²² 3	I	107	753	65	452	269.7	-16.2	+32.8
21 ³⁰ 3	I	98	438	75	338	272.5	-16.1	+49.8
22 ⁶⁴ 3	G	97	347	122	424	271.8	-16.3	+66.8
23 ¹⁷ 5	I	35	137	59	227	271.9	-16.2	+74.0
Means	...	...	...	86	432	267.39	-16.30	...
Group 437.								
A large regular spot which breaks up to form a compact cluster of small spots.								
Mar. 13 ¹⁶ 4	I	16	84	32	172	255.9	+10.5	-74.0
14 ⁴⁶ 4	G	34	180	33	176	255.7	+10.2	-57.1
15 ⁵¹ 6	G	49	296	36	218	255.1	+10.4	-43.9
16 ⁴³ 0	G	61	231	37	141	256.1	+10.2	-30.9
17 ⁴⁶ 5	G	40	266	22	146	256.2	+10.1	-17.1
18 ⁵⁴ 4	G	27	170	14	89	256.7	+10.0	-2.4
19 ⁵⁴ 8	G	11	82	6	44	257.2	+10.0	+11.4
20 ²² 3	I	32	119	18	67	257.7	+9.8	+20.8
21 ³⁰ 3	I	6	31	4	20	258.2	+9.3	+35.5
Means	...	...	...	22	119	256.53	+10.06	...
Group 438.								
A small faint spot.								
Mar. 18 ⁵⁴ 4	G	9	24	5	14	284.2	+9.6	+25.1
Means	...	...	...	5	14	284.2	+9.6	...
Group 439.								
Two spots on March 19. The group rapidly increases in size, and forms on March 22 a very large double spot. The great spot has broken up by March 25, to form a compact cluster.								
1881. _a								
Mar. 19 ⁵⁴ 8	G	78	272	45	157	224.7	+14.1	-21.1
20 ²² 3	I	277	1051	152	577	226.0	+14.2	-10.9
21 ³⁰ 3	I	283	1413	153	762	224.9	+14.2	+2.2
22 ⁶⁴ 3	G	341	1608	195	919	224.1	+14.4	+19.1
23 ¹⁷ 5	I	283	1337	170	804	223.9	+14.3	+26.0
24 ²⁸ 6	I	240	954	172	675	223.4	+14.2	+40.1
25 ⁴⁰ 5	G	117	652	108	608	222.6	+14.0	+54.0
26 ⁰⁵ 5	Me	32	274	37	343	223.6	+14.0	+63.6
27 ²⁵ 1	I	32	80	76	191	220.3	+12.7	+76.1
Means	...	...	...	123	560	223.72	+14.01	...
Group 440.								
A spot seen only close to the East limb.								
Mar. 19 ⁵⁴ 8	G	0	18	0	45	164.7	-28.2	-81.1
Means	...	...	...	0	45	164.7	-28.2	...
Group 440A.								
A small spot.								
Mar. 20 ²² 3	I	9	16	10	17	290.2	+28.8	+53.3
Means	...	...	...	10	17	290.2	+28.8	...
Group 440B.								
A small spot.								
Mar. 21 ³⁰ 3	I	0	32	0	23	175.6	-14.0	-47.1
Means	...	...	...	0	23	175.6	-14.0	...
Group 441.								
Two small spots close together.								
Mar. 22 ⁶⁴ 3	G	12	47	8	31	166.9	+7.3	-38.1
Means	...	...	...	8	31	166.9	+7.3	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 441*. Several very small spots in a straggling stream.									Group 445—continued.								
1881. _d						°	°	°	1881. _d						°	°	°
Mar. 23.175	I	32	94	19	56	171.1	+12.3	-26.8	Apr. 4.584	G	119	405	95	322	81.0	-31.6	+46.7
24.286	I	38	200	21	109	170.8	+13.7	-12.5	5.285	I	44	274	43	271	82.4	-30.7	+57.4
25.405	G	19	78	10	41	168.0	+13.6	-0.6	6.509	G	21	131	39	248	84.6	-29.6	+75.7
26.055	Me	0	44	0	24	170.1	+13.5	+10.1	Means	...	...	...	58	275	81.57	-31.87	...
Means	...	...	...	13	58	170.0	+13.28	...	Group 446. A small faint spot.								
Group 442. A small spot, which divides into two, becomes fainter and gradually fades away.									Apr. 1.408	G	0	13	0	11	130.0	-25.0	+53.8
Mar. 28.457	G	9	15	8	14	70.6	-19.0	-57.7	Means	...	...	...	0	11	130.0	-25.0	...
29.516	G	9	24	6	17	71.1	-19.1	-43.2	Group 447. A small faint spot.								
30.410	G	0	70	0	42	71.1	-19.2	-31.5	Apr. 1.408	G	0	16	0	27	6.0	+15.0	-70.2
31.464	G	0	13	0	7	72.6	-19.5	-16.1	2.519	G	2	6	2	6	6.7	+15.1	-54.8
Apr. 1.408	G	0	41	0	21	72.4	-19.5	-3.8	Means	...	...	...	1	17	6.35	+15.05	...
Means	...	...	...	3	20	71.56	-19.26	...	Group 448. A small regular spot, rapidly diminishing in size.								
Group 443. A spot which breaks up into several faint spots and gradually fades away.									Apr. 1.408	G	12	48	23	95	359.4	-21.5	-76.8
Mar. 28.457	G	7	51	8	55	70.0	+17.3	-58.3	2.519	G	17	87	18	91	359.8	-20.9	-61.7
29.516	G	20	121	16	95	69.2	+17.7	-45.1	3.254	I	12	80	10	65	0.1	-20.5	-51.7
30.410	G	9	88	6	59	69.0	+18.7	-33.6	4.584	G	15	42	9	26	0.0	-19.7	-34.3
31.464	G	0	44	0	26	68.7	+19.1	-20.0	5.285	I	16	25	9	14	359.9	-19.7	-25.1
Means	...	...	...	8	59	69.23	+18.20	...	Means	...	...	...	14	58	359.84	-20.46	...
Group 444. A very small faint spot.									Group 449. Three very small spots close together.								
Mar. 29.516	G	2	7	2	7	171.0	+14.6	+56.7	Apr. 2.519	G	0	32	0	21	96.3	+16.8	+34.8
Means	...	...	...	2	7	171.0	+14.6	...	Means	...	...	...	0	21	96.3	+16.8	...
Group 445. Two small spots which are near together when they first break out, but gradually separate, increasing in size at the same time, whilst smaller spots appear between them. As usual in spots of the type, the preceding spot increases in size, whilst the following spots diminish.									Group 450. A small spot.								
Mar. 31.464	G	64	240	36	137	80.7	-33.3	-8.0	Apr. 4.584	G	0	111	0	59	50.9	-17.6	+16.6
Apr. 1.408	G	86	601	48	339	81.0	-32.7	+4.8	5.285	I	48	114	27	65	51.1	-18.0	+26.1
2.519	G	113	573	67	339	80.5	-32.6	+19.0	6.509	G	10	71	7	51	54.1	-17.6	+45.2
3.254	I	118	424	75	268	80.8	-32.6	+29.0	7.425	G	0	17	0	16	53.9	-18.3	+57.1
									Means	...	...	...	9	48	52.50	-17.88	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Group.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 451. A regular spot.									Group 454—continued.									
1881. _a									1881. _a									
Apr. 3 ^h 25 ^m 4	I	9	44	21	100	338 ^o 3	+21 ^o 2	-73 ^o 5	Apr. 11 ^h 30 ^m 9	I	0	0	0	0	...	...	...
4 ^h 58 ^m 4	G	16	117	17	126	337 ^o 3	+21 ^o 4	-57 ^o 0	12 ^h 23 ^m 0	I	0	0	0	0	...	...	...
5 ^h 28 ^m 5	I	32	111	27	95	337 ^o 5	+21 ^o 7	-47 ^o 5	13 ^h 41 ^m 1	G	0	0	0	0	...	...	...
6 ^h 50 ^m 9	G	28	142	19	96	336 ^o 4	+21 ^o 8	-32 ^o 5	14 ^h 22 ^m 8	I	0	0	0	0	...	...	...
7 ^h 42 ^m 5	G	33	102	20	62	335 ^o 7	+22 ^o 2	-21 ^o 1	15 ^h 17 ^m 2	I	0	0	0	0	...	...	...
8 ^h 51 ^m 3	G	19	99	11	57	335 ^o 3	+22 ^o 2	-7 ^o 1	16 ^h 19 ^m 8	I	0	0	0	0	...	...	...
9 ^h 51 ^m 2	G	32	98	18	56	335 ^o 1	+22 ^o 3	+5 ^o 9	17 ^h 19 ^m 9	I	0	0	0	0	...	...	...
10 ^h 22 ^m 2	I	19	54	11	32	334 ^o 9	+22 ^o 4	+15 ^o 0	18 ^h 51 ^m 3	G	3	18	4	28	276 ^o 7	+26 ^o 2	+66 ^o 3	
11 ^h 30 ^m 9	I	26	44	17	29	334 ^o 3	+22 ^o 8	+28 ^o 8	19 ^h 20 ^m 0	I	0	32	0	81	276 ^o 1	+25 ^o 9	+74 ^o 8	
12 ^h 23 ^m 0	I	7	22	5	17	333 ^o 9	+22 ^o 7	+40 ^o 5	Means	0	13	275 ^o 80	+26 ^o 33	...
13 ^h 41 ^m 1	G	0	25	0	26	333 ^o 1	+23 ^o 1	+55 ^o 3										
Means	...	...	...	15	63	335 ^o 62	+22 ^o 16	...	Group 454A. A small spot.								
Group 452. Two small spots which gradually separate from each other. Two other smaller spots appear between them on April 9.									Apr. 11 ^h 30 ^m 9	I	0	22	0	13	274 ^o 9	-20 ^o 1	-30 ^o 6	
Apr. 6 ^h 50 ^m 9	G	9	30	15	51	295 ^o 1	-23 ^o 3	-73 ^o 8	12 ^h 23 ^m 0	I	4	17	2	9	276 ^o 1	-19 ^o 2	-17 ^o 3	
7 ^h 42 ^m 5	G	0	55	0	55	296 ^o 6	-23 ^o 7	-60 ^o 2	Means	1	11	275 ^o 50	-19 ^o 65	...
8 ^h 51 ^m 3	G	11	57	8	42	297 ^o 0	-23 ^o 3	-45 ^o 4										
9 ^h 51 ^m 2	G	27	82	17	52	295 ^o 0	-22 ^o 9	-34 ^o 2										
10 ^h 22 ^m 2	I	0	15	0	9	293 ^o 5	-22 ^o 7	-26 ^o 4	Group 455. A group of spots measured in two clusters.									
Means	...	...	...	8	42	295 ^o 44	-23 ^o 18	...	Apr. 12 ^h 23 ^m 0	I	13	45	8	28	261 ^o 5	-24 ^o 7	-31 ^o 9
Group 453. A large regular spot.									13 ^h 41 ^m 1	G	41	74	22	40	263 ^o 9	-24 ^o 0	-13 ^o 9	
Apr. 7 ^h 42 ^m 5	G	0	76	0	401	270 ^o 5	-15 ^o 9	-86 ^o 3	14 ^h 22 ^m 8	I	64	219	34	116	263 ^o 2	-24 ^o 0	-3 ^o 7	
8 ^h 51 ^m 3	G	34	148	52	224	270 ^o 9	-16 ^o 0	-71 ^o 5	15 ^h 17 ^m 2	I	32	231	17	124	264 ^o 8	-23 ^o 5	+10 ^o 3	
9 ^h 51 ^m 2	G	41	310	38	290	271 ^o 2	-15 ^o 3	-58 ^o 0	16 ^h 19 ^m 8	I	57	403	33	231	264 ^o 6	-23 ^o 3	+23 ^o 6	
10 ^h 22 ^m 2	I	45	240	34	182	271 ^o 2	-15 ^o 2	-48 ^o 7	17 ^h 19 ^m 9	I	49	348	32	222	263 ^o 2	-22 ^o 9	+35 ^o 5	
11 ^h 30 ^m 9	I	48	267	29	162	271 ^o 6	-15 ^o 0	-33 ^o 9	18 ^h 51 ^m 3	G	45	184	40	167	265 ^o 9	-22 ^o 7	+55 ^o 5	
12 ^h 23 ^m 0	I	68	370	37	202	271 ^o 5	-14 ^o 8	-21 ^o 9	19 ^h 20 ^m 0	I	31	137	35	155	264 ^o 5	-22 ^o 6	+63 ^o 2	
13 ^h 41 ^m 1	G	72	355	37	182	271 ^o 1	-14 ^o 7	-6 ^o 7	20 ^h 28 ^m 5	I	0	95	0	194	263 ^o 5	-23 ^o 2	+76 ^o 5	
14 ^h 22 ^m 8	I	76	319	39	163	271 ^o 1	-14 ^o 3	+4 ^o 2	Means	25	142	263 ^o 90	-23 ^o 43	...
15 ^h 17 ^m 2	I	51	289	27	153	271 ^o 5	-14 ^o 1	+17 ^o 0										
16 ^h 19 ^m 8	I	48	272	28	160	271 ^o 5	-14 ^o 0	+30 ^o 5										
17 ^h 19 ^m 9	I	80	219	55	150	270 ^o 8	-13 ^o 7	+43 ^o 1										
18 ^h 51 ^m 3	G	38	186	38	184	270 ^o 7	-13 ^o 4	+60 ^o 3										
19 ^h 20 ^m 0	I	26	90	35	123	270 ^o 6	-13 ^o 5	+69 ^o 3	Group 456. A cluster of small spots.									
Means	...	...	...	35	198	271 ^o 09	-14 ^o 61	...	Apr. 12 ^h 23 ^m 0	I	0	10	0	18	220 ^o 5	+13 ^o 1	-72 ^o 9
Group 454. One or two small spots. The group is not seen from April 10 to April 17.									13 ^h 41 ^m 1	G	18	87	19	90	219 ^o 2	+13 ^o 4	-58 ^o 6	
Apr. 8 ^h 51 ^m 3	G	0	17	0	31	273 ^o 5	+26 ^o 6	-68 ^o 9	14 ^h 22 ^m 8	I	20	107	16	86	218 ^o 4	+13 ^o 8	-48 ^o 5	
9 ^h 51 ^m 2	G	0	19	0	19	276 ^o 9	+26 ^o 6	-52 ^o 3	15 ^h 17 ^m 2	I	23	52	15	34	219 ^o 2	+14 ^o 0	-35 ^o 3	
10 ^h 22 ^m 2	I	0	0	0	0	...	...	...	16 ^h 19 ^m 8	I	16	32	9	18	219 ^o 9	+14 ^o 2	-21 ^o 1
									Means	12	49	219 ^o 44	+13 ^o 70	..

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 457. A large spot forming suddenly.									Group 460. A number of small unstable spots. The group undergoes continual changes.								
1881. _d Apr. 15.172	I	77	251	48	156	290.0	-17.5	+35.5	1881. _d Apr. 18.513	G	21	71	16	56	159.9	-16.8	-50.5
16.198	I	48	194	38	153	291.6	-17.3	+50.6	19.200	I	32	71	21	48	159.9	-16.9	-41.4
17.199	I	32	112	38	132	292.9	-17.7	+65.2	20.285	I	32	127	19	75	156.4	-17.4	-30.6
18.513	G	0	14	0	59	295.2	-18.0	+84.8	21.227	I	113	401	60	213	159.4	-17.2	-15.2
Means ...	...	...	...	31	125	292.43	-17.63	...	22.203	I	107	602	55	311	160.5	-17.7	-1.1
Group 457A. Two spots <i>f</i> , Group 457.									23.432	G	150	694	80	371	161.3	-17.2	+15.9
Apr. 17.199	I	64	193	48	144	274.8	-18.5	+47.1	24.	...	No photograph.	(45	272	161.1	-17.2	+27.8)	
Means ...	...	...	...	48	144	274.8	-18.5	...	25.254	I	16	264	10	174	160.9	-17.2	+39.6
Group 458. A cluster of several small spots, not seen on April 19 and 20.									26.555	G	43	227	41	214	161.9	-16.8	+57.8
Apr. 18.513	G	0	31	0	17	220.7	-23.1	+10.3	27.293	I	7	187	8	242	162.0	-16.5	+67.7
19.200	I	0	0	0	0	...	...	...	Means ...	...	...	...	36	198	160.33	-17.09	...
20.285	I	0	0	0	0	...	...	...	Group 461. A large regular spot on April 18. A stream of small spots form behind it on the succeeding days, the rear spot finally becoming nearly as large as the leader.								
21.227	I	13	39	10	29	221.4	-22.8	+46.8	Apr. 18.513	G	13	116	15	136	146.7	+7.3	-63.7
22.203	I	62	282	61	280	221.1	-22.6	+59.5	19.200	I	72	285	65	258	146.1	+7.8	-55.2
23.432	G	3	44	5	82	220.3	-23.2	+74.9	20.285	I	142	611	97	408	147.6	+7.0	-39.4
Means ...	...	...	...	13	68	220.88	-22.93	...	21.227	I	109	479	63	274	147.0	+7.8	-27.6
Group 458*. A very small spot <i>f</i> , Group 458.									22.203	I	122	345	64	181	150.9	+7.6	-10.7
Apr. 18.513	G	0	8	0	4	213.2	-21.7	+2.8	23.432	G	120	490	62	254	151.4	+7.8	+6.0
Means ...	...	...	...	0	4	213.2	-21.7	...	24.	...	No photograph.	(58	264	152.8	+7.4	+19.4)	
Group 459. Two spots with several smaller attendants. The group rapidly increases in size up to April 20, and then diminishes again as quickly.									25.254	I	89	450	54	274	154.1	+7.0	+32.8
Apr. 18.513	G	47	134	30	85	182.2	+20.8	-28.2	26.555	G	111	567	89	449	153.5	+7.1	+49.4
19.200	I	101	337	60	198	182.7	+20.2	-18.6	27.293	I	114	386	121	405	154.9	+7.0	+60.6
20.285	I	222	601	124	336	183.2	+20.6	-3.8	28.399	G	49	352	90	617	152.4	+6.8	+72.6
21.227	I	64	322	36	181	183.4	+20.0	+8.8	29.307	I	0	59	0	160	146.5	+8.0	+78.7
22.203	I	17	170	10	101	182.8	+20.0	+21.2	Means ...	...	...	...	65	307	150.33	+7.38	...
23.432	G	7	33	5	24	185.0	+19.9	+39.6	Group 462. A small spot.								
Means ...	...	...	...	44	154	183.22	+20.25	...	Apr. 18.513	G	0	6	0	8	142.5	-9.0	-67.9
Group 462A. A short stream of small spots, <i>n.f.</i> , Group 460.									19.200	I	0	3	0	3	143.2	-10.2	-58.1
Apr. 21.227	I	16	116	9	65	148.9	-10.2	-25.7	20.285	I	0	23	0	16	142.5	-12.7	-44.5
Means ...	...	...	...	9	65	148.9	-10.2	...	Means ...	...	...	...	0	9	142.73	-10.63	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 463. A small spot.								
1881. _a Apr. 18 ^h 51 ^m 13 ^s 19 ^h 20 ^m 0 ^s	G I	0 6	13 16	0 9	30 23	131 ^o 2 131 ^o 5	-26 ^o 6 -26 ^o 2	-79 ^o 2 -69 ^o 8
Means ...	...	...	...	5	27	131 ^o 35	-26 ^o 4	...
Group 464. A small spot on April 20. A second is seen near it on April 21.								
Apr. 20 ^h 28 ^m 5 ^s 21 ^h 22 ^m 27 ^s	I I	10 0	61 26	5 0	31 13	185 ^o 3 183 ^o 4	-14 ^o 9 -15 ^o 4	-1 ^o 7 +8 ^o 8
Means ...	...	...	...	3	22	184 ^o 35	-15 ^o 15	...
Group 465. Two large spots seen only near the West limb. The preceding spot of the two is no longer seen on April 26.								
Apr. 25 ^h 25 ^m 4 ^s 26 ^h 55 ^m 5 ^s	I G	42 0	333 86	41 0	336 149	177 ^o 2 174 ^o 1	+20 ^o 3 +20 ^o 9	+55 ^o 9 +70 ^o 0
Means ...	...	...	...	21	243	175 ^o 65	+20 ^o 60	...
Group 465*. Two small spots.								
Apr. 26 ^h 55 ^m 5 ^s	G	9	48	5	26	111 ^o 4	+15 ^o 5	+7 ^o 3
Means ...	...	...	...	5	26	111 ^o 4	+15 ^o 5	...
Group 466. A small spot.								
Apr. 30 ^h 42 ^m 0 ^s	G	10	26	12	30	352 ^o 1	+21 ^o 4	-61 ^o 0
May 1 ^h 24 ^m 2 ^s 2 ^h 26 ^m 2 ^s	I I	7 0	42 49	6 0	36 34	352 ^o 8 352 ^o 3	+21 ^o 1 +21 ^o 9	-49 ^o 4 -36 ^o 4
Means ...	...	...	...	6	33	352 ^o 40	+21 ^o 47	...
Group 466A. A spot, <i>n. f.</i> , Group 466.								
May 1 ^h 24 ^m 2 ^s	I	10	43	10	43	347 ^o 2	+24 ^o 5	-55 ^o 0
Means ...	...	...	...	10	43	347 ^o 2	+24 ^o 5	...
Group 467. A regular spot.								
1881. _a May 3 ^h 39 ^m 8 ^s 4 ^h 25 ^m 6 ^s 5 ^h 54 ^m 6 ^s 6 ^h 40 ^m 2 ^s 7 ^h 39 ^m 4 ^s 8 ^h 20 ^m 7 ^s 9 ^h 48 ^m 3 ^s	G G G G G G G G	0 26 27 27 17 20 17	21 66 113 140 122 98 58	0 37 23 19 10 11 9	60 94 97 97 73 55 31	293 ^o 2 293 ^o 0 292 ^o 9 293 ^o 3 293 ^o 2 292 ^o 9 293 ^o 1	-23 ^o 5 -23 ^o 2 -23 ^o 0 -23 ^o 0 -22 ^o 8 -23 ^o 0 -22 ^o 7	-80 ^o 5 -69 ^o 4 -52 ^o 4 -40 ^o 7 -27 ^o 7 -17 ^o 2 -0 ^o 2
Means ...	...	...	...	16	72	293 ^o 09	-23 ^o 03	...
Group 468. Two very small spots.								
May 5 ^h 54 ^m 6 ^s	G	3	16	2	11	27 ^o 4	-11 ^o 8	+42 ^o 1
Means ...	...	...	...	2	11	27 ^o 4	-11 ^o 8	...
Group 469. Several very small spots arranged in two compact little clusters. The preceding cluster has disappeared before May 9, and the spots of the other cluster coalesce.								
May 5 ^h 54 ^m 6 ^s 6 ^h 40 ^m 2 ^s 7 ^h 39 ^m 4 ^s 8 ^h 20 ^m 7 ^s 9 ^h 48 ^m 3 ^s 10 ^h 32 ^m 1 ^s 11 ^h 43 ^m 5 ^s	G G G G G I G	17 0 3 22 0 0 0	70 51 22 83 40 29 21	9 0 2 15 0 0 0	37 28 13 57 36 35 53	348 ^o 8 349 ^o 4 347 ^o 1 349 ^o 1 348 ^o 3 346 ^o 8 346 ^o 5	-22 ^o 2 -21 ^o 4 -22 ^o 3 -21 ^o 4 -21 ^o 4 -21 ^o 9 -22 ^o 4	+3 ^o 5 +15 ^o 4 +26 ^o 2 +39 ^o 0 +55 ^o 0 +64 ^o 7 +79 ^o 1
Means ...	...	...	...	4	37	348 ^o 00	-21 ^o 86	...
Group 470. Three small faint spots. The group is not seen on May 6.								
May 5 ^h 54 ^m 6 ^s 6 ^h 40 ^m 2 ^s 7 ^h 39 ^m 4 ^s 8 ^h 20 ^m 7 ^s 9 ^h 48 ^m 3 ^s 10 ^h 32 ^m 1 ^s	G G G G G I	0 0 7 16 26 32	20 0 43 113 168 75	0 0 4 10 19 29	11 0 25 70 126 67	335 ^o 3 ... 335 ^o 4 335 ^o 1 333 ^o 5 332 ^o 0	+24 ^o 4 ... +24 ^o 5 +24 ^o 3 +24 ^o 9 +24 ^o 7	-10 ^o 0 ... +14 ^o 5 +25 ^o 0 +40 ^o 2 +49 ^o 9
Means ...	...	...	...	10	50	334 ^o 26	+24 ^o 56	...
Group 471. A regular spot, with two companions on May 9.								
May 5 ^h 54 ^m 6 ^s 6 ^h 40 ^m 2 ^s 7 ^h 39 ^m 4 ^s	G G G	8 28 14	32 63 62	16 31 11	61 71 49	270 ^o 1 270 ^o 3 270 ^o 6	-13 ^o 7 -13 ^o 9 -13 ^o 8	-75 ^o 2 -63 ^o 7 -50 ^o 3

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 471—continued.								
1881. _d May 8 ²⁰⁷ 9 ⁴⁸³ 10 ³²¹	G G I	17 29 26	48 153 72	11 17 14	32 88 38	270.3 267.9 268.7	-14.0 -18.3 -16.3	-39.8 -25.4 -13.4
Means ...	...	...	...	17	57	269.65	-15.00	...
Group 472.								
A regular spot followed by a stream of small spots, of which the last is the largest. These following spots, however, have all disappeared before May 15, leaving the leader alone. The faculae connected with the group on May 20 form a straggling group of intricate shape.								
May 10 ³²¹ 11 ⁴³⁵ 12 ⁴⁸⁷ 13 ⁴⁰³ 14 ⁴⁷² 15 ¹⁶³ 16 ²⁶⁶ 17 ²⁰⁰ 18 ⁵⁵⁵ 19 ⁴⁴¹ 20 ⁴³¹ 21 ⁴¹⁷	I G G G G I I I G G G G	13 33 79 90 66 58 60 59 50 50 28 4	43 188 410 398 377 357 371 261 237 212 164 56	35 39 63 59 37 31 31 32 31 37 28 7	113 235 333 260 213 190 193 142 148 157 164 98	204.0 202.5 203.9 204.5 205.5 207.0 207.1 207.2 207.0 207.0 207.0 207.9	+12.5 +13.8 +13.5 +13.8 +13.8 +13.7 +13.7 +14.0 +14.0 +14.4 +14.6 +14.5	-78.1 -64.9 -49.6 -36.9 -21.8 -11.1 +3.6 +16.1 +33.8 +45.5 +58.6 +72.5
Means ...	...	...	...	36	187	205.88	+13.86	...
Group 472A.								
A small spot.								
May 10 ³²¹	I	16	33	9	18	287.8	+20.2	+5.7
Means ...	...	...	...	9	18	287.8	+20.2	...
Group 473.								
A small spot.								
May 13 ⁴⁰³	G	5	10	5	10	184.0	+18.5	-57.4
Means ...	...	...	...	5	10	184.0	+18.5	...
Group 474.								
A small spot.								
May 13 ⁴⁰³ 14 ⁴⁷² 15 ¹⁶³ 16 ²⁶⁶	G G I I	7 0 6 10	14 12 30 32	14 0 5 6	28 12 24 20	166.1 167.0 167.5 168.0	+5.7 +6.2 +6.5 +6.6	-75.3 -60.3 -50.6 -35.5
Means ...	...	...	...	6	21	167.15	+6.25	...

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 475.								
A small spot, n., of the place of Group 473.								
1881. _d May 18 ⁵⁵⁵ 19 ⁴⁴¹	G G	0 5	51 13	0 3	29 8	186.4 187.0	+22.1 +22.3	+13.2 +25.5
Means ...	...	...	...	2	19	186.70	+22.20	...
Group 476.								
Two small spots.								
May 19 ⁴⁴¹	G	8	22	8	21	215.8	+24.8	+54.3
Means ...	...	...	...	8	21	215.8	+24.8	...
Group 477.								
A scattered group composed of a number of small unstable spots that undergo continual changes.								
May 19 ⁴⁴¹ 20 ⁴³¹ 21 ⁴¹⁷ 22 ¹⁹¹ 23 ⁵⁶³ 24 ³⁸⁶	G G G I G G	19 58 23 20 24 0	60 225 113 50 70 16	11 37 17 19 33 0	35 142 86 47 102 32	174.3 174.5 176.8 178.8 174.0 169.5	-30.7 -30.3 -30.2 -30.1 -30.4 -31.6	+12.8 +26.1 +41.4 +53.6 +67.0 +73.4
Means ...	...	...	...	20	74	174.65	-30.55	...
Group 478.								
A small faint spot.								
May 19 ⁴⁴¹ 20 ⁴³¹	G G	2 0	9 10	1 0	5 6	176.6 176.3	+21.0 +20.9	+15.1 +27.9
Means ...	...	...	...	1	6	176.45	+20.95	...
Group 479.								
A small spot.								
May 21 ⁴¹⁷	G	0	12	0	7	164.2	-16.3	+28.8
Means ...	...	...	...	0	7	164.2	-16.3	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.								
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.											
Group 480.									Group 484.																
Two spots. The following spot diminishes rapidly and has disappeared before May 25.									A small spot, with a very small companion on May 29. The principal spot has divided into two by May 30.																
1881. _a									1881. _a																
May 21 ⁴ 17	G	80	247	48	148	158°0	-27°1	+22°6	May 28 ¹ 92	I	0	36	0	32	351°8	-19°1	-53°9								
22 ¹ 191	I	66	229	43	151	158°3	-26°7	+33°1	29 ¹ 101	I	0	37	0	26	352°2	-18°8	-41°5								
23 ⁵ 63	G	27	77	25	69	159°3	-25°5	+52°3	30 ⁴ 92	G	0	10	0	6	352°0	-19°0	-23°3								
24 ³ 86	G	12	48	15	57	159°1	-25°3	+63°0																	
25 ³ 96	G	0	14	0	35	161°1	-24°6	+78°4																	
Means	26	92	159°16	-25°84	...	Means	0	21	352°0	-18°97	...								
Group 481.									Group 485.																
Two regular spots. A third spot is seen between them on May 25. The following spots disappear before May 30.									A very fine stream of spots, some of them of considerable size and the last very large.																
May 22 ¹ 91	I	9	68	6	48	88°1	-28°0	-37°1	May 27 ² 84	I	37	251	82	546	341°0	-10°7	-76°7								
23 ⁵ 63	G	73	268	43	157	89°1	-27°9	-17°9	28 ¹ 92	I	189	523	224	611	341°3	-10°1	-64°4								
24 ³ 86	G	58	249	33	141	90°3	-28°0	-5°8	29 ¹ 101	I	203	739	173	616	341°3	-10°2	-52°4								
25 ³ 96	G	109	454	62	258	90°4	-27°9	+7°7	30 ⁴ 92	G	234	1247	146	770	340°9	-10°8	-34°4								
26 ² 83	I	79	385	47	230	90°7	-27°8	+19°7	31 ³ 96	G	292	1595	162	885	340°1	-10°5	-23°3								
27 ² 84	I	66	444	44	296	90°4	-27°7	+32°7	June 1 ⁴ 18	G	360	2148	186	1110	340°3	-10°2	-9°5								
28 ¹ 92	I	60	404	47	314	90°0	-27°5	+44°3	2 ⁴ 04	G	285	1602	146	820	340°6	-9°9	+3°5								
29 ¹ 01	I	46	277	47	276	90°1	-27°0	+56°4	3 ⁴ 38	G	291	1315	155	701	340°8	-9°1	+17°7								
30 ⁴ 92	G	37	140	83	318	91°3	-26°8	+76°0	4 ⁴ 01	G	172	881	102	521	341°2	-8°6	+30°9								
Means	46	226	90°04	-27°62	...	5 ⁰ 94	Me	116	454	77	302	341°5	-8°7	+40°3								
Group 482.									6 ⁵ 40	G	34	98	34	100	342°										

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 480.									Group 484.								
Two spots. The following spot diminishes rapidly and has disappeared before May 25.									A small spot, with a very small companion on May 29. The principal spot has divided into two by May 30.								
1881. _a									1881. _a								
May 21 ⁴ 17	G	80	247	48	148	158°0	-27°1	+22°6	May 28 ¹⁹ 2	I	0	36	0	32	351°8	-19°1	-53°9
22 ¹⁹ 1	I	66	229	43	151	158°3	-26°7	+33°1	29 ¹⁰ 1	I	0	37	0	26	352°2	-18°8	-41°5
23 ⁵⁶ 3	G	27	77	25	69	159°3	-25°5	+52°3	30 ⁴⁹ 2	G	0	10	0	6	352°0	-19°0	-23°3
24 ³⁸ 6	G	12	48	15	57	159°1	-25°3	+63°0									
25 ³⁹ 6	G	0	14	0	35	161°1	-24°6	+78°4									
Means	26	92	159°16	-25°84	...	Means	0	21	352°0	-18°97	...
Group 481.									Group 485.								
Two regular spots. A third spot is seen between them on May 25. The following spots disappear before May 30.									A very fine stream of spots, some of them of considerable size and the last very large.								
May 22 ¹⁹ 1	I	9	68	6	48	88°1	-28°0	-37°1	May 27 ²⁸ 4	I	37	251	82	546	341°0	-10°7	-76°7
23 ⁵⁶ 3	G	73	268	43	157	89°1	-27°9	-17°9	28 ¹⁹ 2	I	189	523	224	611	341°3	-10°1	-64°4
24 ³⁸ 6	G	58	249	33	141	90°3	-28°0	-5°8	29 ¹⁰ 1	I	203	739	173	616	341°3	-10°2	-52°4
25 ³⁹ 6	G	109	454	62	258	90°4	-27°9	+7°7	30 ⁴⁹ 2	G	234	1247	146	770	340°9	-10°8	-34°4
26 ²⁸ 3	I	79	385	47	230	90°7	-27°8	+19°7	31 ³⁹ 6	G	292	1595	162	885	340°1	-10°5	-23°3
27 ²⁸ 4	I	66	444	44	296	90°4	-27°7	+32°7	June 1 ⁴ 18	G	360	2148	186	1110	340°3	-10°2	-9°5
28 ¹⁹ 2	I	60	404	47	314	90°0	-27°5	+44°3	2 ⁴⁰ 4	G	285	1602	146	820	340°6	-9°9	+3°5
29 ¹⁰ 1	I	46	277	47	276	90°1	-27°0	+56°4	3 ⁴³ 8	G	291	1315	155	701	340°8	-9°1	+17°7
30 ⁴⁹ 2	G	37	140	83	318	91°3	-26°8	+76°0	4 ⁴⁰ 1	G	172	881	102	521	341°2	-8°6	+30°9
Means	46	226	90°04	-27°62	...	5 ⁰⁹ 4	Me	116	454	77	302	341°5	-8°7	+40°3
Group 482.									6 ⁵⁴ 0	G	34	98	34	100	342°0	-8°3	+60°0
A regular spot, followed by two small spots. These latter disappear, and the leader spot has broken up into several portions by May 30.									Means	135	635	341°00	-9°74	...
Group 483.									Group 486.								
Two small spots.									Two small spots.								
May 23 ⁵⁶ 3	G	59	118	57	118	49°8	+19°5	-57°2	May 31 ³⁹ 6	G	0	13	0	9	324°5	-25°7	-38°9
24 ³⁸ 6	G	48	201	36	155	49°5	+19°6	-46°6	Means	0	9	324°5	-25°7	...
25 ³⁹ 6	G	116	324	75	208	49°4	+19°8	-33°3	Group 487.								
26 ²⁸ 3	I	65	291	37	167	50°9	+20°1	-20°1	Two spots. Other smaller spots form around these, making two compact clusters.								
27 ²⁸ 4	I	63	344	35	188	49°1	+20°5	-8°6	May 31 ³⁹ 6	G	4	16	9	33	289°1	+22°8	-74°3
28 ¹⁹ 2	I	39	283	21	152	49°2	+20°1	+3°5	June 1 ⁴ 18	G	21	82	21	86	291°0	+22°2	-58°8
29 ¹⁰ 1	I	46	229	26	128	50°5	+20°0	+16°8	2 ⁴⁰ 4	G	80	272	60	206	292°4	+21°6	-44°4
30 ⁴⁹ 2	G	21	134	14	90	52°5	+20°1	+37°2	3 ⁴³ 8	G	83	386	52	243	291°9	+21°2	-31°2
31 ³⁹ 6	G	13	51	11	42	52°7	+20°0	+49°1	4 ⁴⁰ 1	G	95	576	54	327	292°0	+20°9	-18°3
Means	35	139	50°40	+19°97	...	5 ⁰⁹ 4	Me	97	400	53	218	292°7	+20°9	-8°5
Group 483.									6 ⁵⁴ 0	G	56	206	31	113	290°6	+21°4	+8°6
Two small spots.									7	...	No photograph.						
May 30 ⁴⁹ 2	G	0	42	0	27	35°5	+31°9	+20°2	8 ⁵³ 2	G	36	130	22	79	286°4	+22°5	+17°6
Means	0	27	35°5	+31°9	...	9 ¹⁹ 8	I	43	775	28	117	282°2	+23°6	+26°5
Group 483.									10 ⁴³ 7	G	17	71	15	62	281°7	+23°6	+34°9
Two small spots.									11 ⁴¹ 1	G	0	8	0	10	282°2	+23°6	+51°8
May 30 ⁴⁹ 2	G	0	42	0	27	35°5	+31°9	+20°2							283°8	+23°2	+66°2
Means	0	27	35°5	+31°9	...	Means	31	133	288°00	+22°29	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 488. Two spots.								
1881. _a June 8 ⁵³² 9 ¹⁹⁸	G I	11 0	55 33	6 0	31 18	233 ¹ 231 ¹	+16 ⁹ +18 ⁰	-22 ⁶ -15 ⁷
Means ...	...	...	...	3	25	232 ¹⁰	+17 ⁵	...
Group 489. A large regular spot with a small attendant. The latter rapidly increases in size.								
June 9 ¹⁹⁸ 10 ⁴³⁷ 11 ⁴¹¹ 12 13 ⁴¹⁷ 14 ⁴⁰¹ 15 ²¹¹ 16 ²⁰⁵ 17 ²⁴⁷ 18 ¹⁹¹	I G G ... G G I I I I	30 100 90 No photograph. 110 76 61 44 47 40	208 403 535 (58) 626 521 440 308 281 158	39 82 59 (58) 58 39 32 25 31 33	270 332 354 342 331 270 231 176 187 132	180 ¹ 179 ⁴ 178 ⁶ 178 ⁴ 178 ² 178 ⁵ 178 ⁵ 179 ² 179 ⁵ 179 ⁸	+14 ⁵ +14 ⁸ +14 ⁸ +14 ⁹ +14 ⁹ +15 ² +15 ² +15 ⁵ +15 ⁷ +15 ⁹	-66 ⁷ -51 ⁰ -39 ⁰ -25 ⁹ -12 ⁸ +0 ⁵ +11 ¹ +25 ¹ +39 ² +51 ⁸
Means ...	...	...	...	46	263	179 ⁰²	+15 ¹⁴	...
Group 490. A straggling stream of small spots.								
June 10 ⁴³⁷ 11 ⁴¹¹ 12 13 ⁴¹⁷ 14 ⁴⁰¹ 15 ²¹¹	G G ... G G I	15 20 No photograph. 8 0 0	60 91 (10) 140 62 76	15 15 (10) 5 0 0	65 75 80 86 36 44	172 ⁷ 172 ⁷ 172 ² 171 ⁶ 174 ⁷ 175 ⁰	-29 ⁴ -29 ³ -29 ³ -29 ² -28 ⁹ -28 ²	-57 ⁷ -54 ⁹ -37 ² -19 ⁴ -3 ³ +7 ⁶
Means ...	...	...	...	8	64	173 ¹⁵	-29 ⁰⁵	...
Group 491. A straggling stream of small spots.								
June 10 ⁴³⁷ 11 ⁴¹¹ 12 13 ⁴¹⁷ 14 ⁴⁰¹ 15 ²¹¹	G G ... G G I	10 21 No photograph. 28 27 6	50 205 (19) 188 75 147	14 21 (19) 17 14 3	67 199 155 112 40 76	162 ⁵ 159 ³ 159 ⁵ 159 ⁷ 162 ⁰ 159 ⁸	-9 ⁵ -9 ⁸ -9 ⁶ -9 ³ -9 ⁴ -9 ³	-67 ⁹ -58 ³ -44 ⁸ -31 ³ -16 ⁰ -7 ⁶
Means ...	...	...	...	15	108	160 ⁴⁷	-9 ⁴⁸	...
Group 492. Two small spots.								
1881. _a June 13 ⁴¹⁷ 14 ⁴⁰¹ 15 ²¹¹	G G I	0 8 13	14 38 104	0 5 9	8 23 74	210 ⁶ 210 ³ 210 ⁶	+15 ⁹ +16 ³ +16 ⁵	+19 ⁶ +32 ³ +43 ²
Means ...	...	...	...	5	35	210 ⁵⁰	+16 ²³	...
Group 493. A small spot.								
June 13 ⁴¹⁷	G	11	28	6	15	168 ⁷	+22 ⁶	-22 ³
Means ...	...	...	...	6	15	168 ⁷	+22 ⁶	...
Group 494. A small regular spot.								
June 13 ⁴¹⁷ 14 ⁴⁰¹ 15 ²¹¹ 16 ²⁰⁵ 17 ²⁴⁷ 18 ¹⁹¹ 19 20 ⁴⁰⁴ 21 ⁴⁸²	G G I I I I ... G G	25 16 37 23 40 40 No photograph. 15 3	107 109 133 148 126 141 (15) 47 18	40 16 29 15 23 22 53 9 2	172 108 105 97 73 78 121 ² 28 12	121 ⁰ 121 ³ 121 ¹ 121 ² 121 ² 121 ³ 121 ² 121 ⁰ 120 ⁸	-22 ² -21 ⁸ -22 ² -22 ² -22 ³ -22 ⁴ -22 ⁶ -22 ⁷ -22 ⁰	-70 ⁰ -56 ⁷ -46 ³ -32 ⁹ -19 ¹ -6 ⁷ +7 ⁹ +22 ⁵ +36 ⁵
Means ...	...	...	...	19	81	121 ¹²	-22 ²⁷	...
Group 495. Two small spots, of which the following has disappeared by June 20. The group is not seen on June 22.								
June 14 ⁴⁰¹ 15 ²¹¹ 16 ²⁰⁵ 17 ²⁴⁷ 18 ¹⁹¹ 19 20 ⁴⁰⁴ 21 ⁴⁸² 22 ⁴³⁸ 23 ⁴⁶¹	G I I I I ... G G G G	13 68 67 66 36 No photograph. 0 12 0 0	59 147 264 198 155 (10) 35 17 0 5	9 41 37 36 20 56 0 13 0 21	41 89 147 106 86 143 ¹ 27 19 0 21	137 ⁸ 138 ⁰ 138 ⁷ 139 ¹ 141 ⁹ 143 ¹ 144 ³ 144 ⁶ ... 139 ⁸	-18 ⁴ -18 ⁷ -19 ⁰ -19 ² -19 ⁴ -19 ⁵ -19 ⁵ -19 ⁰ ... -18 ⁸	-40 ² -29 ⁴ -15 ⁴ -1 ² +13 ⁹ +29 ⁹ +45 ⁸ +60 ³ ... +81 ⁷
Means ...	...	...	...	17	59	140 ⁸¹	-19 ⁰⁶	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 495A. A spot seen only close to the East limb.								
1881. d June 15 ² 11	I	10	27	27	73	87.7	+ 4.3	-79.7
Means ...	...	...	...	27	73	87.7	+ 4.3	...
Group 496. A small regular spot.								
June 15 ² 11	I	0	33	0	159	84.2	-27.0	-83.2
16 ² 05	I	23	79	39	134	84.4	-27.2	-69.7
17 ² 47	I	17	151	17	151	84.9	-26.9	-55.4
18 ² 19	I	43	202	34	160	84.2	-27.1	-43.8
19	...	No photograph.		(26	122	84.2	-26.8	-29.1)
20 ² 40	G	31	141	18	83	84.1	-26.4	-14.4
21 ² 48	G	23	82	13	47	84.1	-26.3	-0.2
22 ² 43	G	12	55	7	32	83.2	-26.5	+11.6
23 ² 46	G	21	35	13	22	83.0	-26.5	+24.9
24 ² 47	G	12	38	9	28	82.8	-26.9	+38.2
25 ² 12	I	0	46	0	40	82.1	-27.1	+47.2
Means ...	...	...	...	16	89	83.75	-26.79	...
Group 497. Two very small spots.								
June 20 ² 40	G	0	14	0	8	70.0	+16.2	-28.5
Means ...	...	...	...	0	8	70.0	+16.2	...
Group 498. Two small spots, first seen near the West limb. The group has developed into a fine stream by the second day of observation.								
June 23 ² 46	G	10	33	7	24	106.2	+14.4	+48.1
24 ² 47	G	126	313	125	312	104.1	+15.3	+59.5
25 ² 12	I	49	247	72	368	105.3	+14.7	+70.4
Means ...	...	...	...	68	235	105.20	+14.80	...
Group 499. A small spot.								
June 23 ² 46	G	0	11	0	6	42.0	-19.6	-16.1
Means ...	...	...	...	0	6	42.0	-19.6	...

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 500. Two small spots, of which the following has disappeared by June 25.								
1881. d June 23 ² 46	G	5	33	8	50	348.4	-10.0	-69.7
24 ² 47	G	0	54	0	45	352.6	-10.4	-52.0
25 ² 12	I	3	27	2	18	354.2	-8.6	-40.7
Means ...	...	...	...	3	38	351.73	-9.67	...
Group 501. Two large spots. The following spot greatly diminishes in size.								
June 23 ² 46	G	15	72	108	515	331.3	+25.8	-86.8
24 ² 47	G	40	210	73	381	331.5	+26.1	-73.1
25 ² 12	I	47	177	54	206	332.0	+26.4	-62.9
26	...	No photograph.		(53	211	332.0	+26.2	-49.3)
27 ² 28	I	77	326	51	217	331.9	+25.9	-35.6
28 ² 52	G	71	361	41	209	331.0	+25.9	-20.0
29 ² 41	G	76	334	42	185	331.2	+26.4	-8.0
30 ² 48	G	45	217	25	120	331.3	+27.2	+6.2
July 1 ² 52	G	57	265	33	154	330.5	+27.1	+19.2
2 ² 41	G	39	109	25	70	330.7	+27.7	+31.4
3 ² 11	I	29	117	21	84	331.5	+27.1	+41.3
4 ² 44	G	34	95	34	95	330.3	+27.5	+57.6
5 ² 46	G	12	40	19	63	330.3	+27.5	+71.1
Means ...	...	...	...	45	193	331.19	+26.68	...
Group 502. Two spots, which rapidly diminish in size and become small and faint.								
June 24 ² 47	G	0	25	0	110	320.8	+28.5	-83.8
25 ² 12	I	0	46	0	86	321.5	+28.8	-73.4
26	...	No photograph.		(6	70	320.9	+28.6	-60.3)
27 ² 28	I	16	67	13	54	320.3	+28.4	-47.2
28 ² 52	G	17	60	11	39	319.0	+28.0	-32.0
29 ² 41	G	14	40	8	23	320.6	+27.6	-18.6
30 ² 48	G	0	25	0	14	318.4	+28.6	-7.1
July 1 ² 52	G	14	33	8	18	318.0	+27.1	+6.7
2 ² 41	G	5	18	3	10	317.8	+25.7	+18.5
Means ...	...	...	...	5	47	319.70	+27.92	...
Group 503. A fine group, consisting principally of two large spots. The following spot breaks up into a number of fragments.								
June 27 ² 28	I	103	478	55	255	358.0	-14.8	-9.5
28 ² 52	G	212	950	112	501	357.4	-14.5	+6.4
29 ² 41	G	253	930	141	518	357.9	-14.6	+18.7
30 ² 48	G	138	711	86	444	357.7	-14.4	+32.6

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 503—continued.									Group 506—continued.								
1881. _a July 1 ⁵ 22 2 ⁴ 19 3 ¹ 15	G G I	179 42 83	665 486 385	137 43 111	509 498 512	357 ⁶ 358 ⁰ 356 ⁴	—14 ⁴ —14 ⁴ —14 ⁷	+46 ³ +58 ⁷ +66 ²	1881. _a July 5 ⁴ 60 6 ⁴ 49 7 ¹ 08	G I Me	22 17 0	106 66 39	13 11 0	61 43 29	281 ⁵ 281 ² 281 ³	+24 ⁰ +24 ² +24 ²	+22 ¹ +35 ¹ +43 ⁹
Means ...	...	...	...	98	462	357 ⁵⁷	—14 ⁵⁴	...	Means ...	...	...	...	19	101	282 ¹¹	+23 ⁷⁷	...
Group 504. A large spot with several small attendants. The group rapidly diminishes to become a cluster of three or four small faint spots.									Group 507. A large spot.								
June 27 ² 80 28 ⁵ 27 29 ⁴ 16 30 ⁴ 81	I G G G	47 65 54 20	248 343 219 65	36 39 29 10	193 205 118 33	318 ² 319 ³ 320 ² 319 ⁶	+12 ⁶ +12 ⁶ +12 ⁵ +12 ³	—49 ³ —31 ⁷ —19 ⁰ —5 ⁵	July 1 ⁵ 22 2 ⁴ 19 3 ¹ 15 4 ⁴ 44 5 ⁴ 60	G G I G G	0 17 40 20 17	57 106 133 116 54	0 22 37 14 10	135 134 123 80 32	233 ⁰ 233 ⁰ 234 ⁵ 232 ⁴ 232 ²	+23 ⁰ +22 ⁵ +22 ⁸ +22 ⁶ +23 ¹	—78 ³ —66 ³ —55 ⁷ —40 ³ —27 ⁰
July 1 ⁵ 22 2 ⁴ 19 3 ¹ 15 4 ⁴ 44	G G I G	12 0 3 0	53 71 47 11	6 0 2 0	27 38 27 8	318 ⁹ 318 ⁴ 318 ⁴ 318 ⁵	+12 ⁴ +12 ⁷ +13 ⁴ +13 ³	+7 ⁶ +19 ¹ +28 ² +45 ⁸	Means ...	...	...	...	17	101	233 ⁰²	+22 ⁸⁰	...
Group 505. A great number of small spots in a straggling stream. The group changes into a straight stream of the usual type, the first and last spots being the largest. All but the leader spot rapidly diminish and disappear.									Group 508. A cluster of very small spots.								
June 27 ² 80 28 ⁵ 27 29 ⁴ 16 30 ⁴ 81	I G G G	26 46 85 77	266 373 479 362	25 32 51 41	254 261 287 194	309 ⁵ 307 ⁹ 307 ⁷ 307 ⁷	+14 ³ +15 ⁰ +15 ² +15 ⁴	—58 ⁰ —43 ¹ —31 ⁵ —17 ⁴	July 4 ⁴ 44 5 ⁴ 60 6 ⁴ 49 7 ¹ 08 8 9 ⁴ 26	G G I Me ... G	37 0 0 0 0 11	74 64 29 77 No photograph. 58	47 0 0 0 (3 6	95 54 19 46 38 31	206 ² 207 ⁷ 209 ⁹ 209 ⁵ 209 ⁴ 209 ²	+24 ³ +23 ¹ +23 ⁴ +23 ¹ +23 ⁴ +23 ⁶	—66 ⁵ —51 ⁵ —36 ² —27 ⁹ —12 ⁷ +2 ⁵
July 1 ⁵ 22 2 ⁴ 19 3 ¹ 15 4 ⁴ 44	G G I G	45 35 33 15	217 231 100 29	23 18 18 10	112 120 55 19	309 ⁶ 310 ¹ 312 ⁰ 311 ⁶	+15 ⁴ +15 ² +15 ⁰ +15 ²	—1 ⁷ +10 ⁸ +21 ⁸ +38 ⁹	Means ...	...	...	...	9	47	208 ⁶⁵	+23 ⁴⁸	...
Group 506. A regular spot, with two or three short-lived companions.									Group 509. A small spot.								
June 28 ⁵ 27 29 ⁴ 16 30 ⁴ 81	G G G	23 41 32	129 233 170	30 38 23	181 228 120	282 ⁵ 281 ⁶ 283 ⁵	+23 ⁴ +23 ⁶ +22 ⁹	—68 ⁵ —57 ⁶ —41 ⁶	July 4 ⁴ 44 5 ⁴ 60 6 ⁴ 49 7 ¹ 08 8 9 ⁴ 26	G G I Me ... G	0 0 7 9 0 0	18 24 33 44 No photograph. 15	0 0 5 6 (3 0	27 23 24 28 18 8	202 ⁴ 202 ³ 202 ² 201 ⁷ 201 ⁵ 201 ²	+20 ⁷ +20 ⁵ +20 ⁷ +20 ⁶ +20 ⁹ +21 ¹	—70 ³ —56 ⁹ —43 ⁹ —35 ⁷ —20 ⁶ —5 ⁵
July 1 ⁵ 22 2 ⁴ 19 3 ¹ 15 4 ⁴ 44	G G I G	45 30 37 28	156 128 181 151	27 17 20 15	94 72 98 82	282 ⁹ 282 ¹ 282 ⁸ 281 ⁷	+23 ⁸ +23 ⁹ +23 ⁹ +23 ⁸	—28 ⁴ —17 ² —7 ⁴ +9 ⁰	Means ...	...	...	...	0	12	200 ⁴⁵	—19 ⁵⁵	...
Group 510. Two very small spots.									Group 510. Two very small spots.								
July 4 ⁴ 44 5 ⁴ 60	G G	0 0	4 14	0 0	8 15	200 ² 200 ⁷	—19 ⁷ —19 ⁴	—72 ⁵ —58 ⁵	Means ...	...	...	...	0	12	200 ⁴⁵	—19 ⁵⁵	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 511.								
A regular spot forming with Groups 514, 515, and 517 a remarkable line of disturbance.								
1881. _a								
July 4.444	G	0	10	0	25	192.9	+16.7	-79.8
5.460	G	20	66	25	82	192.8	+16.9	-66.4
6.449	I	43	143	37	122	192.4	+17.2	-53.7
7.108	Me	30	181	22	131	192.1	+16.8	-45.3
8	...	No photograph.		(17	103	192.3	+16.8	-29.8)
9.426	G	23	142	12	75	192.5	+16.7	-14.2
10	...	No photograph.		(10	66	194.5	+16.7	+1.7)
11.527	G	17	108	9	58	196.5	+16.7	+17.6
12.490	G	10	55	6	33	196.7	+16.8	+30.5
Means	...	...	...	15	77	193.63	+16.81	...
Group 512.								
Three small spots.								
July 5.460	G	7	22	4	12	243.1	-14.7	-16.1
Means	...	...	...	4	12	243.1	-14.7	...
Group 513.								
Two small spots.								
July 5.460	G	7	27	8	33	198.2	-25.8	-61.0
Means	...	...	...	8	33	198.2	-25.8	...
Group 514.								
Three or four small spots. Only one remains on July 11.								
July 7.108	Me	29	76	15	39	237.3	+15.2	-0.1
8	...	No photograph.		(14	42	237.2	+15.4	+15.2)
9.426	G	24	77	14	45	237.1	+15.6	+30.4
10	...	No photograph.		(9	31	238.2	+15.3	+45.4
11.527	G	4	18	4	18	239.4	+15.0	+60.5
Means	...	...	...	11	35	237.84	+15.30	...
Group 515.								
A large regular spot, with large proper motion, and following it a large composite spot.								
July 4.444	G	5	27	9	47	198.8	+16.0	-73.8
5.460	G	21	126	21	124	200.2	+15.9	-59.0
6.449	I	69	235	49	168	201.6	+15.9	-44.5
7.108	Me	53	259	33	160	202.5	+15.1	-34.9
8	...	No photograph.		(26	164	203.3	+14.4	-18.7)
9.426	G	39	331	20	169	204.1	+13.7	-2.6
Group 515—continued.								
1881. _a								
July 10	...	No photograph.		(44	282	203.8	+14.2	+11.0)
11.527	G	123	707	69	396	203.5	+14.7	+24.6
12.490	G	113	505	73	327	204.9	+15.0	+38.7
13.485	G	58	388	47	317	204.9	+14.4	+51.9
14.478	G	59	239	71	285	205.5	+14.5	+65.6
15.400	G	16	114	37	264	206.1	+14.0	+78.4
Means	...	...	...	42	225	203.27	+14.82	...
Group 515A.								
A regular spot, <i>n.f.</i> , Group 509.								
July 7.108	Me	0	70	0	46	198.9	+17.2	-38.5
Means	...	...	...	0	46	198.9	+17.2	...
Group 516.								
Two large spots which soon coalesce.								
July 9.426	G	61	334	79	432	142.5	-19.3	-64.2
10	...	No photograph.		(81	420	142.4	-19.6	-50.4)
11.527	G	123	595	84	409	142.3	-19.8	-36.6
12.490	G	124	656	74	393	142.4	-19.7	-23.8
13.485	G	127	729	71	407	142.3	-19.7	-10.7
14.478	G	95	770	52	423	142.2	-19.8	+2.3
15.400	G	128	748	73	425	142.3	-19.6	+14.6
16.395	G	133	633	83	392	142.4	-19.3	+27.9
17.141	I	73	264	51	184	142.2	-19.3	+37.6
18.481	G	18	78	17	76	141.6	-19.6	+54.7
19.526	G	13	60	21	97	142.0	-19.3	+68.9
Means	...	...	...	62	333	142.24	-19.55	...
Group 517.								
A regular spot.								
July 11.527	G	21	106	25	125	113.5	+13.9	-65.4
12.490	G	24	123	20	101	113.9	+13.8	-52.3
13.485	G	29	119	19	77	114.2	+14.2	-38.8
14.478	G	42	147	24	83	114.4	+14.3	-25.5
15.400	G	31	63	16	33	114.9	+14.3	-12.8
16.395	G	8	27	4	14	115.1	+14.6	+0.6
17.141	I	4	17	2	9	115.9	+14.8	+11.3
Means	...	...	...	16	63	114.56	+14.27	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 518.									Group 522.								
A compact cluster of small faint spots, which have coalesced by July 13 to form one faint spot. A second spot has formed, following it by July 16. The group is not seen on July 17.									A large regular spot, which diminishes in size very quickly after passing the central meridian.								
1881. _a						°	°	°	1881. _a						°	°	°
July 12 ⁴⁹⁰	G	0	60	0	48	118.7	-14.7	-47.5	July 18 ⁴⁸¹	G	54	180	115	382	9.6	+18.5	-77.3
13 ⁴⁸⁵	G	11	51	7	32	120.2	-14.2	-32.8	19 ⁵²⁶	G	78	316	86	347	9.9	+18.7	-63.2
14 ⁴⁷⁸	G	7	27	4	15	121.1	-13.8	-18.8	20 ⁰⁸⁷	Me	96	374	85	331	10.4	+19.3	-55.3
15 ⁴⁰⁰	G	11	43	6	23	121.0	-13.9	-6.7	21 ⁴⁴²	G	174	615	114	402	9.4	+19.3	-38.3
16 ³⁹⁵	G	0	27	0	14	120.5	-13.9	+6.0	22	...	No photograph.		(91)	365	9.4	+19.5	-27.6
17 ¹⁴¹	I	0	0	0	0	...	...	...	23 ⁰⁸³	Me	126	607	68	328	9.3	+19.6	-16.8
18 ⁴⁸¹	G	17	51	11	33	121.1	-14.6	+34.2	24 ⁴²⁰	I	98	553	51	287	9.1	+19.5	+0.7
19 ⁵²⁶	G	14	47	12	39	122.6	-13.8	+49.5	25 ⁴⁶⁶	G	99	553	53	296	9.5	+19.6	+15.0
Means ...	...	...	...	5	26	120.74	-14.13	...	26 ⁵³⁵	G	65	418	38	246	9.2	+19.6	+28.8
Group 519.									27 ²¹⁵	I	64	178	41	115	8.9	+19.3	+37.6
A very small spot.									28 ⁴¹²	G	17	69	14	58	8.4	+19.8	+52.8
July 13 ⁴⁸⁵	G	0	7	0	5	196.7	-18.4	+43.7	29 ³⁹⁸	G	5	13	6	15	7.8	+19.9	+65.3
Means ...	...	...	...	0	5	196.7	-18.4	...	Means ...	...	...	...	64	264	9.24	+19.38	...
Group 520.									Group 523.								
A compact cluster of small faint spots.									A small spot on July 19. The group is not seen on July 20, but has reappeared as a pair of spots by July 21. The preceding spot has disappeared by July 23.								
July 13 ⁴⁸⁵	G	0	22	0	13	135.0	-22.3	-18.0	July 19 ⁵²⁶	G	0	19	0	11	98.8	+14.5	+25.7
14 ⁴⁷⁸	G	2	30	1	17	134.6	-22.2	-5.3	20 ⁰⁸⁷	Me	0	0	0	0	...	...	...
15 ⁴⁰⁰	G	0	111	0	63	134.6	-22.4	+6.9	21 ⁴⁴²	G	71	254	57	206	100.3	+14.4	+52.6
Means ...	...	...	...	0	31	134.73	-22.30	...	22	...	No photograph.		(28)	136	98.9	+14.4	+62.0
Group 521.									23 ⁰⁸³	Me	0	50	0	75	97.5	+14.3	+71.4
A regular spot with a few faint markings, <i>s.f.</i> , which rapidly increase in size and form a chain of spots.									Means ...	...	...	...	17	86	98.88	+14.40	...
July 18 ⁴⁸¹	G	29	188	26	174	29.5	+14.1	-57.4	Group 524.								
19 ⁵²⁶	G	83	370	56	254	30.2	+14.2	-42.9	A few spots in a stream, which steadily increases in size.								
20 ⁰⁸⁷	Me	80	373	49	228	31.3	+14.6	-34.4	July 24 ⁴²⁰	I	16	115	11	80	51.3	+17.7	+42.9
21 ⁴⁴²	G	65	308	34	163	30.7	+14.4	-17.0	25 ⁴⁶⁶	G	50	190	46	174	51.4	+16.6	+56.9
22	...	No photograph.		(28)	144	31.1	+14.7	-5.8	26 ⁵³⁵	G	52	151	83	241	53.0	+17.2	+72.6
23 ⁰⁸³	Me	43	244	22	125	31.5	+14.9	+5.4	Means ...	...	...	...	47	165	51.90	+17.17	...
24 ⁴²⁰	I	70	328	38	178	30.2	+12.7	+21.8	Group 525.								
25 ⁴⁶⁶	G	72	290	44	179	30.3	+12.2	+35.8	A large regular spot with a number of small companions. The companions soon disappear, leaving the chief spot alone.								
26 ⁵³⁵	G	47	211	38	168	31.8	+12.3	+51.4	July 23 ⁰⁸³	Me	53	191	70	251	318.3	+24.3	-67.8
27 ²¹⁵	I	10	56	10	56	31.5	+11.8	+60.2	24 ⁴²⁰	I	70	530	56	420	319.3	+24.6	-49.1
28 ⁴¹²	G	12	88	28	192	33.0	+10.8	+77.4	25 ⁴⁶⁶	G	147	707	94	455	319.1	+24.4	-35.4
Means ...	...	...	...	34	169	31.01	+13.34	...	26 ⁵³⁵	G	187	721	106	408	319.5	+23.9	-20.9
									27 ²¹⁵	I	130	648	70	351	318.6	+24.3	-12.7
									28 ⁴¹²	G	115	621	61	329	319.1	+24.0	+3.5
									29 ³⁹⁸	G	127	570	70	313	318.9	+23.8	+16.4
									30 ⁴⁵³	I	69	403	42	244	318.9	+23.7	+30.4
									31	...	No photograph.		(59)	255	318.4	+24.0	+43.0

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 525—continued.									Group 528A. A small spot, s.p., Group 525.								
1881. _a Aug. 1'435 2'501 3'116	G G I	84 76 33	294 207 98	76 106 73	265 288 218	317'9 317'9 318'5	+24'2 +23'9 +23'7	+55'6 +69'7 +78'4	1881. _a July 24'420	I	7	39	5	28	322'8	+13'0	-45'6
Means ...	...	...	...	74	316	318'70	+24'07	...	Means ...	...	...	...	5	28	322'8	+13'0	...
Group 526. A large regular spot, crossed by a fine bridge.									Group 529. A faint spot.								
July 23'083 24'420 25'466 26'535 27'215 28'412 29'398 30'453 31	Me I G G I G G I ...	0 36 130 216 162 237 233 172 ...	66 316 573 883 755 940 907 842 No photo	0 36 97 135 94 129 126 97 (114	130 313 428 552 439 511 490 476 524	309'9 309'6 309'5 308'7 308'4 307'2 306'7 306'1 305'3	+26'2 +26'5 +26'8 +26'9 +26'8 +27'1 +27'3 +27'3 +27'6	-76'2 -58'8 -45'0 -31'7 -22'9 -8'4 +4'2 +17'6 +29'9	July 26'535 27'215 28'412	G I G	9 13 4	44 50 24	5 7 2	24 26 12	318'2 318'5 318'2	+13'7 +14'4 +13'0	-22'2 -12'8 +2'6
Aug. 1'435 2'501 3'116 4'451	G G I G	185 129 76 33	802 569 339 157	132 118 88 95	573 522 394 449	304'5 304'0 304'8 304'1	+27'8 +27'7 +27'3 +27'2	+42'2 +55'8 +64'7 +81'7	Means ...	...	...	...	5	21	318'30	+13'70	...
Means ...	...	...	...	97	446	306'83	+27'12	...	Group 530. A small spot.								
Group 527. A cluster of small spots.									July 28'412	G	0	15	0	8	322'6	+9'9	+7'0
July 24'420 25'466 26'535 27'215 28'412	I G G I G	0 9 9 0 0	66 40 31 66 38	0 6 5 0 0	64 28 18 37 20	312'1 313'7 314'5 312'7 313'0	-13'7 -13'4 -13'4 -13'3 -13'9	-56'3 -40'8 -25'9 -18'6 -2'6	Means ...	...	...	...	0	8	322'6	+9'9	...
Means ...	...	...	...	2	33	313'20	-13'54	...	Group 531. A large spot, with occasionally one or two small companions.								
Group 528. A cluster of small spots.									July 28'412 29'398 30'453 31	G G I ...	57 87 185 No photo	290 390 656 No photo	31 45 96 (72	157 201 341 279	296'9 298'1 297'4 298'4	+17'8 +17'9 +17'9 +18'6	-18'7 -4'4 +8'9 +23'0
Aug. 1'435 2'501 3'116 4'451	G G I G	77 44 46 13	341 224 197 64	49 36 48 31	217 185 207 153	299'3 300'7 302'3 301'8	+19'3 +19'6 +19'3 +18'8	+37'0 +52'5 +62'2 +79'4	Means ...	...	...	...	51	218	299'36	+18'65	...
Group 532. A large spot of irregular outline.									July 28'412 29'398 30'453 31 ...	G G I ...	32 84 49 No photo	190 401 264 No photo	18 44 25 (30	106 209 136 176	292'2 292'3 291'8 291'7	+18'6 +18'4 +18'1 +18'6	-23'4 -10'2 +3'3 +16'3
Aug. 1'435 2'501 3'116 4'451	G G I G	60 17 26 0	367 168 98 60	35 12 21 0	216 117 80 79	291'5 291'0 291'9 290'8	+19'1 +19'4 +19'1 +18'6	+29'2 +42'8 +51'8 +68'4	Means ...	...	...	...	23	140	291'65	+18'74	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 533. A small spot, followed on July 29 by another similar spot.								
1881. _d July 28 ⁴ 12 29 ³ 398 30 ⁴ 453	G G I	5 8 0	14 33 20	7 7 0	19 31 14	246 ⁰ 244 ⁰ 246 ¹	+17 ⁷ +18 ⁵ +18 ³	-69 ⁶ -58 ⁵ -42 ⁴
Means ...	...	...	...	5	21	245 ³⁷	+18 ¹⁷	...
Group 534. A small spot on July 29. A second has appeared preceding it by July 30, and the one first seen has disappeared by August 1.								
July 29 ³ 398 30 ⁴ 453 31	G I ...	14 12 No photograph.	42 81 (30	8 8 98	24 52 98	317 ³ 319 ⁷ 321 ⁰	-18 ⁷ -18 ⁸ -18 ¹	+14 ⁸ +31 ² +45 ⁶
Aug. 1 ⁴ 435 2 ⁵ 01	G G	47 0	129 43	53 0	145 94	322 ² 322 ³	-17 ³ -16 ⁹	+59 ⁹ +74 ¹
Means ...	...	...	...	20	83	320 ⁵⁰	-17 ⁹⁶	...
Group 535. Some small spots in a straggling stream.								
July 30 ⁴ 453 31 ...	I ...	3 No photograph.	63 (7	3 65	63 65	233 ⁶ 234 ⁴	-19 ⁹ -19 ⁶	-54 ⁹ -41 ⁰
Aug. 1 ⁴ 435 2 ⁵ 01	G G	19 18	107 46	12 10	67 26	235 ² 237 ⁹	-19 ³ -19 ⁰	-27 ¹ -10 ³
Means ...	...	...	...	8	55	235 ²⁸	-19 ⁴⁵	...
Group 536. A small spot.								
July 30 ⁴ 453 31 ..	I ...	0 No photograph.	54 (0	0 33	44 33	237 ⁵ 236 ⁹	+25 ⁰ +25 ⁸	-51 ⁰ -38 ⁶
Aug. 1 ⁴ 435 2 ⁵ 01	G G	0 2	39 9	0 1	23 5	236 ² 236 ⁷	+26 ⁵ +24 ⁶	-26 ¹ -11 ⁵
Means ...	...	...	...	0	26	236 ⁸³	+25 ⁴⁸	...
Group 537. A small spot.								
Aug. 1 ⁴ 435 2 ⁵ 01	G G	0 0	18 25	0 0	21 20	197 ⁴ 197 ³	+15 ² +15 ⁵	-64 ⁹ -50 ⁹
Means ...	...	...	...	0	21	197 ³⁵	+15 ³⁵	...
Group 538. A large regular spot.								
1881. _d Aug. 1 ⁴ 435 2 ⁵ 01 3 ¹ 116 4 ⁴ 451 5 ⁵ 61 6 ⁴ 498 7 8 ⁵ 56 9 ⁵ 68 10 ⁵ 94 11 ³ 89 12 ² 80 13 ² 71	G G I G G G ... G G G G I I	0 68 65 84 116 84 No photograph. 89 72 80 39 49 26	70 459 435 589 574 544 (45 426 353 279 225 173 76	0 87 61 57 66 44 252 46 40 51 172 171 44	218 588 407 398 327 284 218 220 197 179 179 171 128	180 ⁴ 180 ⁴ 182 ¹ 180 ³ 180 ⁰ 180 ³ 180 ⁴ 180 ⁵ 180 ⁴ 180 ⁰ 179 ⁹ 179 ⁷ 179 ⁸	+13 ⁷ +13 ² +13 ³ +13 ³ +12 ⁶ +12 ⁴ +12 ⁵ +12 ⁶ +12 ⁹ +13 ¹ +13 ¹ +12 ⁸ +12 ⁶	-81 ⁹ -67 ⁸ -58 ⁰ -42 ¹ -27 ⁸ -15 ¹ -1 ⁴ +12 ³ +25 ⁶ +38 ⁸ +49 ¹ +60 ⁷ +74 ⁰
Means ...	...	...	...	48	272	180 ³²	+12 ⁹³	...
Group 539. Two small spots.								
Aug. 3 ¹ 116 4 ⁴ 451	I G	0 1	30 10	0 1	27 7	193 ³ 192 ⁵	-27 ¹ -27 ³	-46 ⁸ -29 ⁹
Means ...	...	...	...	1	17	19290	-27 ²⁰	...
Group 540. A cluster of small spots.								
Aug. 3 ¹ 116 4 ⁴ 451 5 ⁵ 61 6 ⁴ 498 7 8 ⁵ 56 9 ⁵ 68	I G G G ... G G	0 28 23 26 No photograph. 26 6	27 73 111 182 (15 172 66	0 21 14 15 100 15 4	30 54 68 104 100 95 42	180 ² 181 ³ 182 ⁰ 182 ⁰ 183 ⁴ 184 ⁸ 185 ⁷	-18 ⁷ -18 ⁷ -18 ⁶ -18 ⁷ -18 ⁴ -18 ¹ -17 ⁹	-59 ⁹ -41 ¹ -25 ⁸ -13 ⁴ +1 ⁶ +16 ⁶ +30 ⁹
Means ...	...	...	...	12	70	182 ⁷⁷	-18 ⁴⁴	...
Group 541. A small spot.								
Aug. 5 ⁵ 61 6 ⁴ 498	G G	6 3	18 28	3 2	10 16	221 ⁷ 221 ⁴	+24 ³ +24 ¹	+13 ⁹ +26 ⁰
Means ...	...	...	...	3	13	221 ⁵⁵	+24 ²⁰	...
Group 542. A small spot not seen on August 10.								
Aug. 6 ⁴ 498 7 8 ⁵ 56 9 ⁵ 68 10 ⁵ 94 11 ³ 89	G ... G G G G	0 No photograph. 5 8 0 0	12 (2 13 18 0 10	0 26 5 6 0 0	41 116 ² 12 13 13 6	116 ⁵ 116 ² 115 ⁸ 115 ⁶ ... 115 ³	-18 ⁶ -18 ⁸ -19 ⁰ -19 ¹ ... -19 ⁰	-78 ⁹ -65 ⁷ -52 ⁴ -39 ² ... -15 ⁵
Means ...	...	...	...	2	16	115 ⁸⁸	-18 ⁹⁰	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 543. A large spot, which has broken up into a number of small fragments by August 9. Of these only one remains by August 11.									Group 549. A large regular spot, frequently surrounded by a number of small attendants.								
1881. _d						°	°	°	1881. _d						°	°	°
Aug. 8.556	G	51	280	29	158	179.0	-18.6	+10.8	Aug. 20.540	G	30	113	51	194	295.3	+28.7	-74.5
9.568	G	23	102	14	62	178.3	-18.4	+23.5	21	...	No photograph.		(49)	200	295.4	+28.4	-62.6
10.594	G	17	126	12	89	178.9	-18.6	+37.7	22.391	G	58	258	47	207	295.6	+28.0	-49.7
11.389	G	0	8	0	7	178.1	-17.4	+47.3	23.402	G	47	273	31	180	294.8	+28.6	-37.2
									24.399	G	104	558	61	327	294.5	+28.3	-24.3
									25.271	I	103	583	57	321	294.0	+28.0	-13.3
Means	...	...	...	14	79	178.58	-18.25	...	26.376	G	80	478	43	258	293.9	+28.6	+1.2
Group 544. A small spot.									27.390	G	86	454	48	252	293.1	+28.6	+13.8
Aug. 10.594	G	0	6	0	4	106.4	-24.0	-34.8	28.399	G	55	301	33	179	292.5	+28.5	+26.6
Means	...	...	...	0	4	106.4	-24.0	...	29.312	I	39	226	26	152	291.8	+28.4	+37.9
Group 545. A small spot.									30.525	G	29	182	25	157	291.4	+28.4	+53.5
Aug. 11.389	G	0	8	0	5	131.1	-28.6	+0.3	31	...	No photograph.		(32)	151	291.0	+28.5	+65.6
Means	...	...	...	0	5	131.1	-28.6	...	Sept. 1.407	G	19	71	39	144	290.6	+28.6	+77.6
Group 546. A straggling group of small spots.									Means	...	...	...	42	209	293.38	+28.43	...
Aug. 11.389	G	42	93	26	57	126.7	-29.3	-4.1	Group 550. Several small spots in a somewhat scattered group, which undergoes frequent and rapid changes.								
12.280	I	16	83	10	51	125.9	-28.8	+6.9	Aug. 22.391	G	28	138	44	215	273.0	+13.9	-72.3
13.271	I	3	99	2	64	124.0	-28.7	+18.2	23.402	G	36	141	34	134	273.0	+13.6	-59.0
Means	...	...	...	13	57	125.53	-28.93	...	24.399	G	42	214	30	154	272.7	+13.4	-46.1
Group 547. A straggling group of small faint spots.									25.271	I	30	230	18	140	272.8	+13.4	-34.5
Aug. 17.423	G	27	69	14	36	40.7	+16.8	-10.3	26.376	G	44	202	23	108	272.8	+13.1	-19.4
18.284	I	0	153	0	78	39.9	+16.5	+0.3	27.390	G	57	263	29	134	272.5	+13.4	-6.8
19.316	I	4	65	2	34	38.9	+17.3	+12.9	28.399	G	51	317	26	161	271.8	+13.1	+5.9
20.540	G	9	33	5	19	38.9	+17.6	+29.1	29.312	I	61	246	32	130	271.3	+14.0	+17.4
Means	...	...	...	5	42	39.60	+17.05	...	30.525	G	8	77	5	46	271.3	+12.6	+33.4
Group 548. A small spot.									Means	...	...	...	27	136	272.41	+13.38	...
Aug. 20.540	G	0	8	0	11	305.2	-14.0	-64.6	Group 551. A small spot.								
Means	...	...	...	0	11	305.2	-14.0	...	Aug. 23.402	G	0	5	0	6	267.3	+18.0	-64.7
Group 549.									Means	...	...	...	0	6	267.3	+18.0	...
Group 550.									Group 552. A large composite spot, with a number of small companions. The group undergoes frequent and rapid changes.								
Group 551.									Aug. 23.402	G	22	95	26	111	266.3	+15.4	-65.7
Group 552.									24.399	G	31	171	25	140	266.0	+15.0	-52.8
Group 553.									25.271	I	52	302	35	201	266.0	+14.9	-41.3
Group 554.									26.376	G	52	246	30	140	265.1	+14.8	-27.6
Group 555.									27.390	G	87	446	45	232	265.5	+14.7	-13.8
Group 556.									28.399	G	143	824	72	416	266.5	+13.9	+0.6
Group 557.									29.312	I	198	756	103	392	266.6	+14.3	+12.7

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 552—continued.								
1881. _d Aug. 30 ⁵²⁵ 31	G ...	136 No photograph.	1032	78 (71	593 556	266 ⁷ 266 ⁷	+14 ³ +14 ⁶	+28 ⁸ +41 ²
Sept. 1 ⁴⁰⁷ 2 3 ⁰⁴⁹	G ... Me	78 No photograph. o	624 142	65 (32 o	520 389 258	266 ⁷ 266 ⁷ 266 ⁷	+14 ⁸ +15 ⁴ +15 ⁹	+53 ⁷ +64 ⁶ +75 ⁴
Means ...	...	...	...	49	329	266 ²⁹	+14 ⁸³	...
Group 553.								
A large regular spot. A second spot of considerable size has formed, following the first by August 26.								
Aug. 23 ⁴⁰² 24 ³⁹⁹ 25 ²⁷¹ 26 ³⁷⁶ 27 ³⁹⁰ 28 ³⁹⁹ 29 ³¹² 30 ⁵²⁵ 31	G G I G G G I G ...	53 68 65 192 181 186 82 121 No photograph.	202 338 423 721 783 728 706 683 (78	73 60 45 113 97 96 43 69 376	277 299 292 424 419 376 367 388 376	262 ³ 263 ² 264 ⁵ 263 ² 263 ⁶ 263 ⁷ 262 ⁶ 263 ⁵ 263 ⁴	+19 ⁷ +20 ³ +20 ⁸ +20 ⁵ +20 ⁸ +20 ⁶ +20 ⁴ +20 ³ +20 ²	-69 ⁷ -55 ⁶ -42 ⁸ -29 ⁵ -15 ⁷ -2 ² +8 ⁷ +25 ⁶ +37 ⁹
Sept. 1 ⁴⁰⁷ 2 3 ⁰⁴⁹	G ... Me	113 No photograph. 46	466 175	88 (78 69	364 312 261	263 ² 263 ² 263 ²	+20 ¹ +20 ⁵ +20 ⁹	+50 ² +61 ¹ +71 ⁹
Means ...	...	...	...	76	346	263 ³⁰	+20 ⁴³	...
Group 554.								
One or two small spots.								
Aug. 23 ⁴⁰² 24 ³⁹⁹ 25 ²⁷¹ 26 ³⁷⁶ 27 ³⁹⁰	G G I G G	o 6 o 28 16	37 38 61 90 76	o 6 o 18 9	64 41 47 57 43	257 ³ 255 ⁷ 258 ⁴ 256 ⁰ 255 ²	+20 ⁰ +20 ⁵ +21 ⁵ +20 ⁹ +21 ¹	-74 ⁷ -63 ¹ -48 ⁹ -36 ⁷ -24 ¹
Means ...	...	...	...	7	50	256 ⁵²	+20 ⁸⁰	...
Group 554A.								
A small spot.								
Aug. 25 ²⁷¹	I	o	46	o	24	309 ⁴	-8 ⁵	+2 ¹
Means ...	...	...	...	o	24	309 ⁴	-8 ⁵	...
Group 555.								
A small spot.								
Aug. 26 ³⁷⁶	G	8	23	4	12	307 ¹	+15 ⁹	+14 ⁴
Means ...	...	...	...	4	12	307 ¹	+15 ⁹	...
Group 556.								
A small spot on August 26, with a few faint markings near it. The disturbance rapidly develops, and on August 27 the group is composed of a number of small but dark spots in an irregular stream.								
1881. _d Aug. 26 ³⁷⁶ 27 ³⁹⁰ 28 ³⁹⁹ 29 ³¹² 30 ⁵²⁵ 31	G G G I G ...	16 155 102 68 64 No photograph.	50 557 405 334 379 (26	9 27 54 38 43 153	27 293 215 188 254 153	276 ² 275 ⁸ 275 ² 275 ⁶ 277 ⁸ 277 ⁹	+24 ⁰ +24 ⁵ +24 ³ +23 ⁸ +23 ⁴ +23 ²	-16 ⁵ -3 ⁵ +9 ³ +21 ⁷ +39 ⁹ +52 ⁵
Sept. 1 ⁴⁰⁷	G	9	46	10	53	278 ⁰	+22 ⁹	+65 ⁰
Means ...	...	...	...	37	169	276 ⁶⁴	+23 ⁷³	...
Group 557.								
A single spot.								
Aug. 26 ³⁷⁶ 27 ³⁹⁰ 28 ³⁹⁹ 29 ³¹² 30 ⁵²⁵	G G G I G	5 27 21 3 8	21 62 102 65 33	25 39 20 2 5	98 91 95 48 20	211 ³ 212 ⁷ 213 ¹ 213 ⁰ 212 ⁸	-17 ⁴ -17 ¹ -17 ⁰ -17 ⁶ -17 ⁹	-81 ⁴ -66 ⁶ -52 ⁸ -40 ⁹ -25 ¹
Means ...	...	...	...	18	70	212 ⁵⁸	-17 ⁴⁰	...
Group 558.								
Four small spots.								
Aug. 30 ⁵²⁵	G	42	212	23	116	259 ⁷	+16 ¹	+21 ⁸
Means ...	...	...	...	23	116	259 ⁷	+16 ¹	...
Group 559.								
A few small spots. Only one of these remains on September 1, but that one has greatly increased in size.								
Aug. 29 ³¹² 30 ⁵²⁵ 31	I G ...	4 7 No photograph.	57 28 (10	2 4 44	32 16 44	255 ¹ 254 ⁵ 254 ⁰	-18 ⁰ -17 ⁹ -18 ⁴	+1 ² +16 ⁶ +28 ⁵
Sept. 1 ⁴⁰⁷	G	23	99	17	73	253 ⁴	-18 ⁹	+40 ⁴
Means ...	...	...	...	8	41	254 ²⁵	-18 ³⁰	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 560. A small spot.									Group 565. A cluster of small spots on September 6. Only one small spot remains by September 7.								
1881. _d Aug. 30 ⁵ 25 31	G ...	9 No photograph.	50	9 (7	50 37	176.9 176.8	+13.5 +13.5	-61.0 -48.7)	1881. _d Sept. 6 ⁴ 36 7 ⁵ 67	G G	17 0	38 10	11 0	25 9	188.0 190.5	+14.3 +14.4	+41.4 +58.8
Sept. 1 ⁴ 07	G	8	39	5	24	176.6	+13.4	-36.4	Means	...	...	...	6	17	189.25	+14.35	...
Means	...	...	...	7	37	176.77	+13.47	...	Group 566. A small regular spot on September 6. The group rapidly develops into a fine stream, the leader of which is much the largest member.								
Group 561. A large composite spot, divided by a bright bridge, and followed by several smaller spots.									Sept. 6 ⁴ 36	G	18	55	13	40	99.7	+13.5	-46.9
Aug. 29 ³ 12	I	0	43	0	139	177.2	-25.5	-76.7	7 ⁵ 67	G	121	413	71	244	100.0	+13.7	-31.7
30 ⁵ 25	G	79	338	105	451	176.5	-25.2	-61.4	8 ² 38	I	122	494	67	270	99.9	+13.5	-22.9
31	...	No photograph.	(120	563	178.8	-25.2	-46.7)	9 ² 69	I	136	1067	70	547	99.5	+13.8	-9.7	
Sept. 1 ⁴ 07	G	189	935	136	675	181.0	-25.1	-32.0	10 ¹ 88	I	245	1187	124	601	99.5	+14.1	+2.4
2	...	No photograph.	(113	586	180.6	-25.2	-21.6)	11 ¹ 66	I	241	1633	127	860	100.8	+14.1	+16.6	
3 ⁰ 49	Me	148	818	89	497	180.2	-25.3	-11.1	12 ² 87	I	207	1214	123	718	101.2	+14.1	+31.8
4 ⁶ 55	G	159	978	96	591	179.5	-25.4	+9.4	13 ⁵ 83	G	221	1016	170	777	101.6	+13.7	+49.4
5 ² 89	I	196	1008	123	629	179.1	-25.4	+17.4	14 ⁴ 43	G	120	646	120	655	102.0	+13.0	+61.1
6 ⁴ 36	G	120	724	86	517	178.7	-25.0	+32.1	15 ⁵ 59	G	50	234	101	479	103.0	+12.2	+76.9
7 ⁵ 67	G	99	535	92	482	178.8	-25.3	+47.1	Means	...	...	...	99	519	100.72	+13.57	...
8 ² 38	I	71	260	78	284	179.0	-25.1	+56.2	Group 567. A small faint spot.								
9 ² 69	I	33	97	65	194	179.5	-24.9	+70.3	Sept. 7 ⁵ 67	G	3	25	2	18	86.2	+16.2	-45.5
Means	...	...	...	92	467	179.08	-25.22	...	8 ² 38	I	0	23	0	14	86.2	+15.6	-36.6
Group 562. A small faint spot.									Means	...	...	...	1	16	86.20	+15.90	...
Sept. 1 ⁴ 07	G	0	28	0	22	168.9	-20.2	-44.1	Group 568. Two regular spots, with occasionally some very small attendants.								
Means	...	...	...	0	22	168.9	-20.2	...	Sept. 12 ² 87	I	82	277	44	148	87.2	-3.0	+17.8
Group 563. A small spot followed on September 5 and 6 by a small companion.									13 ⁵ 83	G	101	342	63	216	88.4	-3.3	+36.2
Sept. 4 ⁶ 55	G	0	32	0	17	173.2	-10.4	+3.1	14 ⁴ 43	G	64	281	49	216	89.1	-3.7	+48.2
5 ² 89	I	61	159	33	86	174.2	-10.4	+12.5	15 ⁵ 59	G	52	159	60	188	90.4	-3.6	+64.3
6 ⁴ 36	G	27	125	16	76	175.7	-10.3	+29.1	16 ⁶ 02	G	0	25	0	87	93.4	-3.6	+81.0
7 ⁵ 67	G	13	33	10	25	177.7	-9.5	+46.0	Means	...	...	...	43	171	89.70	-3.44	...
Means	...	...	...	15	51	175.20	-10.15	...	Group 569. A small spot.								
Group 564. A small faint spot.									Sept. 11 ¹ 66	I	13	35	12	32	27.2	+17.7	-57.0
Sept. 6 ⁴ 36	G	9	28	15	45	219.6	+21.1	+73.0	12 ² 87	I	6	36	4	24	27.7	+17.0	-41.7
Means	...	...	...	15	45	219.6	+21.1	...	13 ⁵ 83	G	9	23	5	13	27.4	+17.2	-24.8
									14 ⁴ 43	G	0	4	0	2	27.4	+17.6	-13.5
									Means	...	...	...	5	18	27.43	+17.38	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 570. Three or four small spots.									Group 573. A small spot.								
1881. _d Sept. 11 ¹⁶⁶	I	10	48	10	48	23°9	+19°8	-60°3	1881. _d Sept. 13 ⁵⁸³	G	0	27	0	37	344°2	+17°8	-68°0
12 ²⁸⁷	I	16	49	12	36	22°5	+18°9	-46°9	14 ⁴⁴³	G	14	30	13	27	343°8	+18°0	-57°1
13 ⁵⁸³	G	17	51	10	30	21°5	+19°6	-30°7	15 ⁵⁵⁹	G	15	28	10	19	344°1	+17°6	-42°0
14 ⁴⁴³	G	20	54	11	29	21°9	+19°7	-19°0	16 ⁶⁰²	G	7	23	4	13	344°3	+17°1	-28°1
15 ⁵⁵⁹	G	8	39	4	20	22°1	+19°6	-4°0	17 ⁴⁵²	G	0	9	0	5	344°1	+17°2	-17°1
Means ...	...	...	...	9	33	22°38	+19°52	...	Means ...	...	...	..	5	20	344°10	+17°54	...
Group 571. Two large regular spots on September 12. These have united by September 15, but have broken up again by September 18.									Group 573A. A spot seen only close to the West limb.								
Sept. 12 ²⁸⁷	I	0	125	0	270	351°4	+16°2	-78°0	Sept. 18 ²³⁸	I	16	61	18	69	55°2	+11°0	+64°5
13 ⁵⁸³	G	78	228	76	224	351°9	+17°0	-60°3	19 ²²²	I	13	64	27	134	55°0	+10°7	+77°2
14 ⁴⁴³	G	69	297	52	225	352°0	+17°4	-48°9	Means ...	...	...	...	23	102	55°10	+10°85	...
15 ⁵⁵⁹	G	92	392	56	239	352°2	+17°5	-33°9	Group 574. A regular spot.								
16 ⁶⁰²	G	105	431	57	234	352°1	+17°7	-20°3	Sept. 19 ²²²	I	23	64	38	107	264°1	+15°1	-73°7
17 ⁴⁵²	G	95	479	49	248	351°9	+17°9	-9°3	20 ⁴⁶¹	G	21	100	19	92	264°0	+15°0	-57°4
18 ²³⁸	I	90	298	46	152	351°8	+17°5	+1°1	21 ²⁸⁴	I	17	56	12	40	264°3	+14°6	-46°2
19 ²²²	I	86	373	45	195	352°1	+17°6	+14°3	22 ²⁸⁷	I	17	58	10	35	263°8	+14°1	-33°5
20 ⁴⁶¹	G	73	284	43	167	351°6	+17°8	+30°2	23 ²⁸⁷	I	17	56	9	30	263°3	+14°5	-20°8
21 ²⁸⁴	I	45	258	30	173	352°0	+17°9	+41°5	24 ⁴²³	G	16	47	8	24	263°7	+14°6	-5°5
22 ²⁸⁷	I	32	112	27	95	351°6	+18°0	+54°3	25 ⁴⁵²	G	12	27	6	14	263°2	+14°5	+7°6
23 ²⁸⁷	I	17	75	21	95	352°0	+18°0	+67°9	26 ⁴⁸⁸	G	19	30	10	16	263°1	+14°4	+21°2
24 ⁴²³	G	8	25	30	91	353°0	+17°5	+83°8	27 ⁵⁵⁷	G	0	8	0	5	262°5	+14°5	+34°7
Means ...	...	...	...	41	185	351°97	+17°55	...	28 ⁴⁶¹	G	0	7	0	5	262°7	+14°6	+46°9
Group 572. Two large regular spots on September 12. These have united by September 15 to form a very large composite spot, the s.f. portion of which afterwards seems to break up into a number of small spots.									Means ...	...	...	...	11	37	263°47	+14°59	...
Group 575. A large regular spot.									Group 575. A large regular spot.								
Sept. 12 ²⁸⁷	I	0	123	0	310	349°0	+20°5	-80°4	Sept. 19 ²²²	I	16	91	39	217	257°8	+21°4	-80°0
13 ⁵⁸³	G	139	421	155	473	348°0	+22°1	-64°2	20 ⁴⁶¹	G	47	243	51	264	257°9	+21°5	-63°5
14 ⁴⁴³	G	112	602	94	507	347°7	+22°4	-53°2	21 ²⁸⁴	I	58	276	48	228	257°8	+21°0	-52°7
15 ⁵⁵⁹	G	137	818	90	538	347°3	+22°6	-38°8	22 ²⁸⁷	I	54	304	36	201	257°7	+20°7	-39°6
16 ⁶⁰²	G	133	779	76	446	347°1	+22°8	-25°3	23 ²⁸⁷	I	61	416	35	239	257°7	+20°8	-26°4
17 ⁴⁵²	G	146	856	78	460	346°8	+23°3	-14°4	24 ⁴²³	G	96	462	50	242	258°1	+20°9	-11°1
18 ²³⁸	I	126	849	66	443	346°5	+22°9	-4°2	25 ⁴⁵²	G	68	500	35	259	257°6	+20°7	+2°0
19 ²²²	I	101	765	53	403	346°5	+23°0	+8°7	26 ⁴⁸⁸	G	62	408	33	218	257°5	+20°5	+15°6
20 ⁴⁶¹	G	107	471	61	269	345°8	+23°5	+24°4	27 ⁵⁵⁷	G	71	401	42	236	257°0	+20°4	+29°2
21 ²⁸⁴	I	57	367	36	231	345°8	+23°3	+35°3	28 ⁴⁶¹	G	80	377	54	255	256°9	+20°5	+41°1
22 ²⁸⁷	I	58	275	44	209	345°1	+23°7	+47°8	29 ⁴⁹⁹	G	67	306	58	264	256°5	+20°7	+54°5
23 ²⁸⁷	I	49	194	49	196	344°8	+23°8	+60°7	30 ⁵⁴⁴	G	49	169	65	223	256°8	+20°2	+68°4
24 ⁴²³	G	17	109	32	205	345°6	+23°3	+76°4	Oct. 1 ³⁹⁶	G	17	96	37	213	255°6	+20°6	+78°5
Means ...	...	...	...	64	361	346°62	+22°86	...	Means ...	...	...	...	45	235	257°30	+20°76	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 575A. A small spot.									Group 579—continued.								
1881. _d Sept. 22·287	I	0	49	0	26	307·8	+22·6	+10·5	1881. _d Oct. 1·396	G	0	3	0	2	212·7	-16·0	+35·6
									2·579	G	0	0	0	0	...	...	...
									3·420	G	8	17	9	20	212·9	-15·7	+62·5
Means ...	...	...	...	0	26	307·8	+22·6	...	Means ...	...	...	...	4	12	211·60	-16·15	...
Group 576. A large regular spot.									Group 580. Three or four small spots in a compact cluster. The group increases in size as it approaches the West limb.								
Sept. 25·452	G	18	87	72	348	171·1	+15·1	-84·5	Sept. 29·499	G	0	29	0	15	195·0	+15·6	-7·0
26·488	G	44	212	65	312	170·7	+14·8	-71·2	30·544	G	18	27	9	14	192·5	+15·7	+4·1
27·557	G	53	288	49	264	170·2	+14·6	-57·6	Oct. 1·396	G	13	38	7	20	194·8	+15·9	+17·7
28·461	G	85	405	61	289	170·0	+14·8	-45·8	2·579	G	8	39	5	24	195·9	+15·8	+34·4
29·499	G	104	486	62	289	170·0	+15·1	-32·0	3·420	G	18	65	13	46	194·9	+15·8	+44·5
30·544	G	126	427	67	227	170·1	+14·6	-18·3	4·462	G	8	58	8	56	195·8	+15·4	+59·2
Oct. 1·396	G	71	437	36	223	169·9	+14·5	-7·2	5·286	I	6	104	8	150	196·6	+14·8	+70·8
2·579	G	74	411	38	211	170·4	+14·5	+8·9	Means ...	...	...	...	7	46	195·07	+15·57	...
3·420	G	52	294	28	158	170·2	+14·5	+19·8	Group 581. A cluster of small spots, increasing rapidly in size during the period of observation.								
4·462	G	40	234	24	141	170·2	+14·4	+33·6	Oct. 1·396	G	8	21	7	19	128·1	-20·9	-49·0
5·286	I	29	122	20	85	170·2	+14·1	+44·4	2·579	G	19	64	13	43	127·9	-20·0	-33·6
6·291	I	29	122	27	113	170·5	+14·3	+57·9	3·420	G	15	77	9	47	128·1	-20·5	-22·3
7·399	G	18	50	29	79	170·5	+14·3	+72·6	4·462	G	44	164	25	93	127·7	-20·3	-9·0
Means ...	...	...	...	44	211	170·31	+14·59	...	5·286	I	64	360	36	203	128·7	-20·3	+2·9
Group 577. A small regular spot.									6·291	I	77	443	45	260	129·7	-19·8	+17·1
Sept. 26·488	G	0	5	0	9	174·2	-25·2	-67·7	7·399	G	78	418	51	274	129·3	-19·5	+31·4
27·557	G	0	16	0	16	174·3	-25·3	-53·5	8·296	I	53	340	42	265	129·1	-20·1	+43·1
28·461	G	10	18	8	15	173·0	-25·0	-42·8	9·300	I	26	282	27	292	129·1	-20·2	+56·3
29·499	G	10	37	7	25	172·5	-25·1	-29·5	10·293	I	0	190	0	333	129·5	-20·0	+69·8
30·544	G	5	13	3	8	172·3	-25·0	-16·1	Means ...	...	...	...	26	183	128·72	-20·16	...
Oct. 1·396	G	5	14	3	8	172·2	-25·0	-4·9	Group 582. A single spot.								
Means ...	...	...	...	4	14	173·08	-25·10	...	Oct. 1·396	G	5	19	9	34	102·0	+12·1	-75·1
Group 578. A small spot.									2·579	G	4	17	4	16	102·3	+11·9	-59·2
Sept. 27·557	G	10	25	5	13	226·5	-8·7	-1·3	3·420	G	11	15	8	11	102·5	+12·1	-47·9
28·461	G	8	13	4	7	228·7	-8·1	+12·9	4·462	G	13	22	8	13	102·7	+11·9	-34·0
29·499	G	2	15	1	9	230·1	-7·9	+28·1	5·286	I	7	33	4	18	102·9	+12·1	-22·9
Means ...	...	...	...	3	10	228·43	-8·23	...	Means ...	...	...	...	7	18	102·48	+12·02	...
Group 579. Two small spots on September 29, which on the succeeding days approach each other and coalesce.									Group 583. A cluster of small spots.								
Sept. 29·499	G	11	49	6	27	209·1	-16·7	+7·1	Oct. 2·579	G	16	60	15	57	220·2	+19·4	+58·7
30·544	G	5	18	3	11	211·7	-16·2	+23·3	3·420	G	8	40	11	53	218·9	+19·6	+68·5
									4·462	G	17	59	40	141	216·3	+20·8	+79·6
									Means ...	...	...	...	22	84	218·47	+19·93	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 584. Two very small spots close together.								
1881. d								
Oct. 3'420	G	0	17	0	14	96'4	+14'2	-54'0
4'462	G	0	8	0	5	97'0	+14'2	-39'7
Means ...	...	...	...	0	10	96'70	+14'20	...
Group 585. A single spot.								
Oct. 6'291	I	6	64	5	54	165'8	+19'0	+53'2
7'399	G	0	36	0	50	168'1	+20'4	+70'2
Means ...	...	...	...	3	52	166'95	+19'70	...
Group 586. A large regular spot, usually with a few companions.								
Oct. 6'291	I	45	155	78	267	38'2	+14'6	-74'4
7'399	G	101	551	99	547	37'4	+14'0	-60'5
8'296	I	83	535	63	401	37'7	+14'0	-48'3
9'300	I	69	537	42	326	38'3	+13'9	-34'5
10'293	I	80	596	43	323	38'2	+14'3	-21'5
11'284	I	80	483	41	248	38'7	+14'0	-7'9
12'296	I	100	562	51	287	38'8	+13'8	+5'5
13'280	I	64	484	34	259	39'2	+13'8	+18'9
14'398	G	92	403	56	244	39'5	+13'7	+33'9
15'398	G	75	363	55	265	39'1	+14'5	+46'7
16'287	I	45	191	43	184	39'9	+14'0	+59'2
17'423	G	29	169	53	308	40'4	+13'3	+74'7
Means ...	...	...	...	55	305	38'78	+13'99	...
Group 586A. A faint group s.f. Group 581.								
Oct. 9'300	I	0	92	0	67	106'0	-27'4	+33'2
Means ...	...	...	...	0	67	106'0	-27'4	...
Group 587. A number of spots in a straight stream.								
Oct. 10'293	I	33	201	19	118	33'5	-11'8	-26'2
11'284	I	63	453	34	245	33'8	-11'7	-12'8
12'296	I	82	460	43	242	34'6	-11'9	+1'3
13'280	I	44	273	24	148	33'7	-11'6	+13'4
14'398	G	23	46	14	28	34'1	-11'7	+28'7
Means ...	...	...	...	27	156	33'94	-11'74	...
Group 588. A group steadily diminishing in size.								
1881. d								
Oct. 10'293	I	0	67	0	142	341'9	+24'3	-77'8
11'284	I	3	89	4	109	340'4	+24'3	-66'2
12'296	I	16	74	14	63	340'1	+24'5	-53'2
13'280	I	0	35	0	24	339'1	+25'0	-41'2
14'398	G	12	32	7	19	338'5	+24'6	-27'1
Means ...	...	...	...	5	71	340'00	+24'54	...
Group 589. A large spot, frequently with some close companions which eventually coalesce with it.								
Oct. 14'398	G	16	166	30	314	289'8	+16'1	-75'8
15'398	G	45	276	47	288	290'4	+15'9	-62'0
16'287	I	48	241	38	193	289'5	+15'7	-51'2
17'423	G	105	602	66	381	288'9	+16'0	-36'8
18'396	G	140	600	78	335	288'9	+16'9	-24'0
19'522	G	178	855	92	443	288'9	+15'9	-9'1
20'478	G	183	1061	94	544	289'0	+16'1	+3'6
21'275	I	205	909	107	476	289'3	+16'0	+14'5
22'284	I	80	665	46	382	288'9	+16'2	+27'3
23'288	I	95	506	63	337	289'2	+15'9	+40'9
24'280	I	63	425	53	357	288'6	+16'1	+53'3
25'430	G	80	300	104	390	287'8	+15'9	+67'7
26'406	G	0	64	0	207	289'5	+14'9	+82'3
Means ...	...	...	...	63	357	289'13	+15'97	...
Group 590. A large regular spot, frequently with some small companions.								
Oct. 16'287	I	0	80	0	196	261'4	+12'9	-79'3
17'423	G	30	205	32	220	262'7	+13'5	-63'0
18'396	G	59	288	46	225	262'8	+14'4	-50'1
19'522	G	55	289	34	177	262'7	+13'7	-35'3
20'478	G	117	479	64	262	262'8	+13'6	-22'6
21'275	I	77	461	40	239	262'9	+13'6	-11'9
22'284	I	63	358	32	182	262'6	+14'0	+1'0
23'288	I	51	266	27	139	262'4	+14'4	+14'1
24'280	I	32	197	18	112	262'1	+14'7	+26'8
25'430	G	66	213	44	142	261'0	+15'1	+40'9
26'406	G	30	178	26	152	261'3	+14'7	+54'1
27'285	I	0	89	0	105	261'2	+14'9	+65'6
28'275	I	0	31	0	72	260'7	+15'0	+78'2
Means ...	...	...	...	28	171	262'05	+14'19	...
Group 591. A large regular spot, frequently with some small companions.								
Oct. 16'287	I	0	63	0	143	262'1	+20'9	-78'6
17'423	G	27	100	30	110	262'5	+21'0	-63'2
18'396	G	34	158	27	126	262'3	+20'8	-50'6

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 598. A regular spot.									Group 601—continued.									
1881. _d						°	°	°	1881. _d						°	°	°	
Nov. 2 ²⁶ 0	I	0	50	0	99	40°9	+14°2	-76°1	Nov. 14 ²⁸ 6	I	28	63	16	36	343°7	-11°2	+25°5	
3 ²⁸ 9	I	28	111	30	119	40°9	+14°1	-62°3	15 ²⁹ 5	I	0	0	0	0	...	...	...
4 ²⁶ 4	I	28	151	22	117	40°9	+14°0	-49°5	16 ¹³ 5	I	0	8	0	6	(343°6	-12°1	+49°7)	
5 ⁴⁹ 8	G	48	189	29	115	40°6	+14°1	-33°6	17 ⁴⁶ 7	G	0	7	0	9	343°6	-12°1	+67°2	
6 ²⁸ 9	I	43	188	24	104	41°4	+14°3	-22°3	Means	13	90	341°23	-11°84	...
7 ²⁹ 3	I	37	187	19	97	41°6	+14°4	-8°8	Group 601A. A double spot with a small companion.									
8 ²⁶ 4	I	35	189	18	97	41°9	+14°6	+4°2	Nov. 7 ²⁹ 3	I	0	69	0	41	25°7	+24°5	-24°7	
9 ⁴⁷ 5	G	44	205	24	112	42°0	+14°8	+20°3	Means	0	41	25°7	+24°5	...
10 ¹⁵ 6	I	34	188	20	110	41°6	+14°5	+28°9	Group 602. Two spots.									
11 ²⁸ 4	I	31	102	22	72	41°5	+14°5	+43°7	Nov. 12 ⁴⁴ 0	G	20	75	13	48	305°6	+14°7	-37°0	
12 ⁴⁴ 0	G	24	99	24	97	41°8	+13°9	+59°2	13 ⁵⁴ 7	G	17	66	9	37	305°5	+14°9	-22°5	
13 ⁵⁴ 7	G	11	42	20	77	42°3	+13°9	+74°3	Means	11	43	305°55	+14°80	...
Means	...	...	...	21	101	41°45	+14°28	...	Group 603. A large regular spot with several attendants. The attendants are few and small at first, and are south of the large spot. They rapidly increase in size, and develop to a considerable distance in front of the chief spot. Finally, all the attendant spots except the leader, which is the largest of them, disappear.								
Group 599. A small spot on November 9. New spots have broken out by November 10, and the group becomes a straight stream.									Nov. 11 ²⁸ 4	I	71	248	109	381	286°7	+16°5	-71°1	
Nov. 9 ⁴⁷ 5	G	13	27	7	14	13°2	+19°7	-8°5	12 ⁴⁴ 0	G	138	502	124	450	287°3	+16°1	-55°3	
10 ¹⁵ 6	I	49	195	26	102	12°6	+18°9	-0°1	13 ⁵⁴ 7	G	203	840	135	560	288°3	+15°7	-39°7	
11 ²⁸ 4	I	63	381	34	206	12°7	+19°1	+14°9	14 ²⁸ 6	I	104	849	62	502	288°6	+15°4	-29°6	
12 ⁴⁴ 0	G	58	317	35	192	13°7	+19°0	+31°1	15 ²⁹ 5	I	109	944	59	506	289°0	+15°4	-15°9	
13 ⁵⁴ 7	G	36	266	26	198	14°3	+18°8	+46°3	16 ¹³ 5	I	199	917	103	475	289°3	+15°7	-4°6	
14 ²⁸ 6	I	0	110	0	99	13°9	+18°8	+55°7	17 ⁴⁶ 7	G	213	894	113	476	290°0	+16°0	+13°6	
Means	...	...	...	21	135	13°40	+19°05	...	18 ⁴⁷ 2	G	158	747	91	432	289°5	+16°2	+26°4
Group 600. Several small spots in a straight stream. The group slowly diminishes in size.									19 ⁵⁰ 1	G	126	571	87	390	290°5	+16°1	+40°9	
Nov. 7 ²⁹ 3	I	0	98	0	97	351°1	+16°2	-59°3	20 ⁵³ 6	G	125	527	116	464	290°1	+16°0	+54°2	
8 ²⁶ 4	I	7	124	5	92	351°4	+15°4	-46°3	21 ⁴⁵ 0	G	58	283	73	357	289°9	+15°7	+66°0	
9 ⁴⁷ 5	G	36	133	21	79	350°9	+15°5	-30°8	22 ²⁹ 3	I	28	102	51	186	286°5	+17°0	+73°7	
10 ¹⁵ 6	I	12	93	7	51	350°6	+15°2	-22°1	Means	94	432	288°81	+15°98	...
11 ²⁸ 4	I	0	120	0	62	351°3	+17°4	-6°5	Group 604. Two large irregular spots.									
12 ⁴⁴ 0	G	8	60	4	31	349°7	+16°4	+7°1	Nov. 13 ⁵⁴ 7	G	30	208	38	257	28°9	-28°6	+60°9	
Group 601. Two spots, of which the following rapidly diminishes in size. The group is not seen on November 15.									14 ²⁸ 6	I	24	99	45	182	28°7	-27°9	+70°5	
Nov. 7 ²⁹ 3	I	0	116	0	205	338°2	-12°1	-72°2	Means	42	220	28°80	-28°25	...
8 ²⁶ 4	I	0	167	0	179	337°3	-12°5	-60°4										
9 ⁴⁷ 5	G	52	231	37	164	339°1	-12°1	-42°6										
10 ¹⁵ 6	I	43	230	26	144	339°4	-12°4	-33°3										
11 ²⁸ 4	I	45	202	24	110	341°0	-11°6	-16°8										
12 ⁴⁴ 0	G	37	138	19	72	342°6	-11°3	0°0										
13 ⁵⁴ 7	G	35	128	19	69	343°8	-11°0	+15°8										

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 605.									Group 608.									
A regular spot, with two or three very small attendants.									A small spot, seen only on the Greenwich photograph of November 16, not on the Indian.									
1881. _d									1881. _d									
Nov. 13 ⁵ 47	G	9	27	19	57	251 ⁶	+23 ⁷	-76 ⁴	Nov. 16 ³ 94	G	0	8	0	6	241 ¹	-20 ³	-49 ⁴	
14 ² 86	I	0	44	0	58	251 ¹	+23 ⁵	-67 ¹										
15 ² 95	I	0	59	0	53	251 ¹	+22 ⁹	-53 ⁸										
16 ¹ 35	I	15	63	11	45	251 ⁴	+22 ⁸	-42 ⁵										
17 ⁴ 67	G	24	71	14	42	251 ²	+22 ⁹	-25 ²										
18 ⁴ 72	G	9	38	5	21	250 ⁸	+23 ¹	-12 ³										
Means	...	...	...	8	46	251 ²⁰	+23 ¹⁵	...									
Group 606.									Group 609.									
A number of small spots which soon arrange themselves in a straight stream, the leader of which is the largest member of the group.									A small spot, which is joined by other spots to form a straight stream. The several spots ultimately coalesce to form a single spot.									
Nov. 15 ² 95	I	0	31	0	91	224 ⁶	+16 ³	-80 ³	Nov. 20 ⁵ 36	G	9	26	8	24	180 ⁵	-14 ¹	-55 ⁴	
16 ¹ 35	I	32	136	33	150	231 ²	+17 ⁶	-62 ⁷	21 ⁴ 50	G	0	21	0	15	179 ⁹	-15 ³	-44 ⁰	
17 ⁴ 67	G	120	588	86	418	233 ²	+17 ⁸	-43 ²	22 ² 93	I	6	29	4	18	179 ⁹	-15 ⁷	-32 ⁹	
18 ⁴ 72	G	117	522	70	312	233 ⁴	+17 ⁹	-29 ⁷	23 ⁵ 04	G	31	175	17	95	181 ⁷	-15 ⁸	-15 ¹	
19 ⁵ 01	G	104	477	56	257	235 ¹	+17 ⁹	-14 ⁵	24 ² 84	I	19	159	10	84	181 ⁹	-15 ⁷	-4 ⁶	
20 ⁵ 36	G	77	309	40	161	236 ⁴	+18 ⁰	+0 ⁵	25 ² 98	I	0	102	0	54	180 ⁰	-16 ³	+6 ⁸	
21 ⁴ 50	G	45	293	24	156	236 ⁰	+17 ⁶	+12 ¹	26 ⁴ 38	G	9	69	5	39	179 ⁷	-16 ⁵	+21 ⁶	
22 ² 93	I	44	189	25	106	233 ⁷	+17 ⁷	+20 ⁹	27 ⁵ 50	G	3	21	2	14	183 ⁹	-14 ¹	+40 ⁴	
23 ⁵ 04	G	39	283	26	183	233 ⁷	+17 ¹	+36 ⁹	28 ⁴ 54	G	6	19	5	16	183 ⁴	-13 ⁹	+51 ⁸	
24 ² 84	I	50	205	38	156	233 ⁷	+16 ⁹	+47 ²	Means	6	40	181 ²¹	-15 ²⁷	...
25 ² 98	I	28	367	28	384	233 ⁵	+17 ⁰	+60 ³										
26 ⁴ 38	G	52	318	116	692	234 ⁵	+16 ⁸	+76 ⁴										
Means	...	...	...	45	256	233 ²⁵	+17 ³⁸	...									
Group 607.									Group 610.									
A large number of spots which soon arrange themselves to form a very fine straight stream. The first and last spots are the largest, the latter being very large on November 21, 22, and 23.									A small spot.									
Nov. 15 ² 95	I	0	62	0	130	228 ⁶	+11 ²	-76 ³	Nov. 21 ⁴ 50	G	0	6	0	3	209 ²	+16 ¹	-14 ⁷	
16 ¹ 35	I	55	281	76	435	222 ⁷	+10 ⁸	-71 ²	Means	0	3	209 ²	+16 ¹	...
17 ⁴ 67	G	166	884	147	778	221 ⁴	+11 ²	-55 ⁰										
18 ⁴ 72	G	306	1185	210	811	221 ⁰	+11 ⁵	-42 ¹										
19 ⁵ 01	G	257	1152	150	669	221 ⁰	+11 ⁵	-28 ⁶										
20 ⁵ 36	G	354	1417	187	749	221 ²	+11 ³	-14 ⁷										
21 ⁴ 50	G	420	2207	214	1125	220 ⁵	+10 ⁹	-3 ⁴										
22 ² 93	I	313	1991	161	1026	220 ⁸	+10 ⁸	+8 ⁰										
23 ⁵ 04	G	366	2203	203	1227	220 ⁸	+11 ²	+24 ⁰										
24 ² 84	I	230	1531	141	932	220 ⁰	+10 ⁶	+33 ⁵										
25 ² 98	I	222	969	162	719	220 ²	+10 ⁶	+47 ⁰										
26 ⁴ 38	G	188	610	197	643	219 ⁷	+10 ¹	+61 ⁶										
27 ⁵ 50	G	66	340	134	693	219 ³	+9 ⁸	+75 ⁸	Nov. 23 ⁵ 04	G	0	12	0	6	195 ⁹	+13 ²	-0 ⁹	
Means	152	764	221 ³²	+10 ⁸⁸	...	Means	0	6	195 ⁹	+13 ²	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 613. Two or three small spots close together. The group is not seen from November 30 to December 2.									Group 618. Two spots.								
1881. _d									1881. _d								
Nov. 27 550	G	4	11	8	20	70°3	-19°0	-73°2	Dec. 2 404	G	84	163	70	135	129°6	-18°8	+50°0
28 454	G	15	44	16	48	70°9	-19°1	-60°7	3 476	G	79	415	98	512	129°8	-19°7	+64°4
29 495	G	22	90	17	71	70°9	-18°8	-47°0	4 166	I	3	243	5	477	131°0	-19°5	+74°7
30 108	Me	0	0	0	0	...	...	...	Means	...	...	...	58	375	130°13	-19°33	...
Dec. 1 283	I	0	0	0	0	...	...	...	Group 619. A fine stream of spots, of which the leader is by far the largest.								
2 404	G	0	0	0	0	...	...	...	Dec. 1 283	I	0	142	0	94	23°0	+24°1	-71°3
3 476	G	0	13	0	7	70°8	-19°3	+5°4	2 404	G	151	684	149	679	23°1	+25°3	-56°5
Means	...	...	...	6	21	70°73	-19°05	...	3 476	G	157	1091	114	796	24°6	+24°8	-40°8
Group 614. A very large spot, with occasionally several small companions.									4 166	I	156	1060	100	681	25°2	+25°0	-31°1
Nov. 27 550	G	4	84	16	322	61°7	-19°6	-81°8	5 280	I	171	1305	98	756	25°0	+24°9	-16°6
28 454	G	86	361	143	601	60°6	-19°9	-71°0	6 430	G	272	1404	151	782	26°0	+25°2	-0°5
29 495	G	95	748	93	730	61°1	-19°9	-56°8	7 302	I	238	1186	135	674	26°4	+25°1	+11°4
30 108	Me	187	531	151	428	61°0	-19°3	-48°7	8 280	I	172	972	104	589	26°4	+25°0	+24°3
Dec. 1 283	I	134	766	86	491	60°5	-19°7	-33°8	9 291	I	88	524	63	368	26°5	+24°9	+37°7
2 404	G	300	915	170	519	60°3	-19°5	-19°3	10 331	I	44	259	41	227	25°4	+24°8	+50°4
3 476	G	193	700	103	375	59°2	-19°6	-6°2	11 228	I	31	109	41	143	28°2	+23°7	+65°0
4 166	I	180	624	96	332	59°2	-19°4	+2°9	12 280	I	12	40	35	114	28°1	+23°7	+78°7
5 280	I	186	482	104	269	59°0	-19°3	+17°4	Means	...	...	...	86	492	25°66	+24°71	...
6 430	G	106	307	67	194	59°6	-19°4	+33°1	Group 620. A small spot on December 4. A second has formed by December 5. The first has disappeared by December 6.								
7 302	I	94	329	69	243	59°5	-18°9	+44°5	Dec. 4 166	I	0	62	0	35	75°1	+21°2	+18°8
8 280	I	62	282	60	271	59°1	-18°7	+57°0	5 280	I	0	78	0	49	74°1	+20°9	+32°5
9 291	I	28	87	44	138	59°4	-18°9	+70°6	6 430	G	7	13	5	10	72°4	+20°9	+45°9
Means	...	...	...	92	378	60°15	-19°39	...	Means	...	...	...	2	31	73°87	+21°00	...
Group 615. A small spot.									Group 621. A single spot.								
Nov. 28 454	G	0	8	0	10	198°7	-13°5	+67°1	Dec. 9 291	I	0	28	0	66	272°7	+27°5	-76°1
Means	...	...	...	0	10	198°7	-13°5	...	10 331	I	6	104	8	128	272°2	+27°3	-62°8
Group 616. Two small and compact clusters of very small spots.									11 228	I	15	78	14	71	271°6	+27°0	-51°6
Nov. 28 454	G	11	44	8	34	86°8	+24°6	-44°8	12 280	I	15	71	11	51	271°4	+26°4	-38°0
29 495	G	19	40	12	25	88°7	+25°0	-29°2	13 281	I	16	135	10	84	270°8	+26°4	-25°4
Means	...	...	...	10	30	87°75	+24°80	...	14 454	G	23	85	13	49	269°9	+26°2	-10°8
Group 617. Two small spots.									15 282	I	4	57	2	32	270°2	+26°1	+0°4
Nov. 29 495	G	8	20	5	12	87°0	+10°8	-30°9	16 349	I	0	62	0	36	269°2	+26°2	+13°4
Means	...	...	...	5	12	87°0	+10°8	...	Means	...	...	...	7	65	271°00	+26°64	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.	Date, Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lati- tude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 622. A single spot.									Group 627. A large regular spot, followed by a stream of small spots.								
1881. _d									1881. _d								
Dec. 10 ^h 33 ^m 1	I	15	74	8	40	349 ^o 8	+15 ^o 8	+14 ^o 8	Dec. 11 ^h 22 ^m 8	I	6	78	13	166	248 ^o 7	+26 ^o 0	-74 ^o 5
11 ^h 22 ^m 8	I	15	103	9	59	348 ^o 6	+13 ^o 5	+25 ^o 4	12 ^h 28 ^m 0	I	99	346	118	409	248 ^o 1	+26 ^o 5	-61 ^o 3
12 ^h 28 ^m 0	I	0	60	0	41	349 ^o 9	+13 ^o 3	+40 ^o 5	13 ^h 28 ^m 1	I	77	670	64	579	247 ^o 3	+26 ^o 6	-48 ^o 9
13 ^h 28 ^m 1	I	0	0	0	0	...	...	...	14 ^h 45 ^m 4	G	144	830	98	572	247 ^o 8	+27 ^o 1	-32 ^o 9
14 ^h 45 ^m 4	G	0	15	0	24	351 ^o 3	+13 ^o 8	+70 ^o 6	15 ^h 28 ^m 2	I	106	726	66	450	246 ^o 8	+27 ^o 4	-23 ^o 0
Means ...	...	...	...	3	33	349 ^o 9 ^o	+14 ^o 1 ^o 0	...	16 ^h 34 ^m 9	I	136	733	79	427	246 ^o 0	+27 ^o 7	-9 ^o 8
									17 ^h 45 ^m 8	G	145	729	84	421	246 ^o 2	+28 ^o 1	+5 ^o 0
									18 ^h 47 ^m 5	G	182	712	111	434	246 ^o 6	+27 ^o 9	+18 ^o 9
									19 ^h 50 ^m 4	G	110	533	75	365	246 ^o 4	+28 ^o 0	+32 ^o 2
									20 ^h 55 ^m 4	G	106	475	89	397	246 ^o 3	+27 ^o 4	+45 ^o 9
									21 ^h 45 ^m 0	G	141	439	154	476	245 ^o 7	+28 ^o 3	+57 ^o 1
									22 ^h 27 ^m 8	I	35	238	55	377	245 ^o 4	+28 ^o 2	+67 ^o 7
									23 ^h 18 ^m 6	I	3	117	10	365	244 ^o 1	+28 ^o 7	+78 ^o 4
									Means ...	...	...	...	78	418	246 ^o 57	+27 ^o 53	...
									Group 627A. A single spot.								
									Dec. 11 ^h 22 ^m 8	I	0	32	0	33	262 ^o 5	-14 ^o 4	-60 ^o 7
									12 ^h 28 ^m 0	I	0	16	0	12	262 ^o 8	-14 ^o 7	-46 ^o 6
									Means ...	...	...	...	0	23	262 ^o 65	-14 ^o 55	...
									Group 628. A regular spot.								
									Dec. 12 ^h 28 ^m 0	I	12	62	22	111	236 ^o 6	+17 ^o 1	-72 ^o 8
									13 ^h 28 ^m 1	I	31	110	31	110	237 ^o 7	+16 ^o 6	-58 ^o 5
									14 ^h 45 ^m 4	G	29	175	21	126	237 ^o 8	+16 ^o 8	-42 ^o 9
									15 ^h 28 ^m 2	I	44	212	27	131	238 ^o 0	+16 ^o 4	-31 ^o 8
									16 ^h 34 ^m 9	I	56	228	31	126	238 ^o 0	+16 ^o 4	-17 ^o 8
									17 ^h 45 ^m 8	G	32	158	17	83	238 ^o 6	+16 ^o 3	-2 ^o 6
									18 ^h 47 ^m 5	G	41	205	22	110	238 ^o 8	+16 ^o 2	+11 ^o 1
									19 ^h 50 ^m 4	G	50	165	29	96	239 ^o 0	+16 ^o 1	+24 ^o 8
									20 ^h 55 ^m 4	G	15	68	10	46	239 ^o 0	+15 ^o 9	+38 ^o 6
									21 ^h 45 ^m 0	G	39	58	33	49	239 ^o 4	+16 ^o 1	+50 ^o 8
									22 ^h 27 ^m 8	I	0	15	0	16	238 ^o 8	+16 ^o 1	+61 ^o 1
									Means ...	...	...	...	22	91	238 ^o 34	+16 ^o 36	...
									Group 629. A number of unstable spots. The group undergoes frequent and violent changes.								
									Dec. 13 ^h 28 ^m 1	I	6	75	11	154	220 ^o 7	+10 ^o 7	-75 ^o 5
									14 ^h 45 ^m 4	G	24	178	23	186	220 ^o 0	+11 ^o 2	-60 ^o 7
									15 ^h 28 ^m 2	I	34	192	28	155	219 ^o 6	+11 ^o 9	-47 ^o 1
									16 ^h 34 ^m 9	I	23	144	15	90	221 ^o 2	+11 ^o 9	-36 ^o 2
									17 ^h 45 ^m 8	G	20	58	11	31	223 ^o 1	+10 ^o 2	-20 ^o 0
									18 ^h 47 ^m 5	G	21	85	11	44	224 ^o 8	+12 ^o 2	-2 ^o 9
									19 ^h 50 ^m 4	G	0	58	0	31	223 ^o 6	+13 ^o 2	+9 ^o 4
									Means ...	...	...	...	14	99	221 ^o 86	+11 ^o 61	...
									Group 626. A single spot.								
									Dec. 14 ^h 45 ^m 4	G	9	28	5	15	265 ^o 1	+15 ^o 9	-15 ^o 6
									15 ^h 28 ^m 2	I	6	46	3	24	267 ^o 1	+14 ^o 8	-2 ^o 7
									16 ^h 34 ^m 9	I	0	47	0	25	267 ^o 5	+14 ^o 4	+11 ^o 7
									Means ...	...	...	...	3	31	266 ^o 57	+15 ^o 03	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 629A. A single spot.								
1881. _a Dec. 13 ^h 28 ^m 1	I	0	25	0	48	10°3	+16°8	+74°1
Means ...	...	...	...	0	48	10°3	+16°8	...
Group 630. Two small spots.								
Dec. 20 ^h 55 ^m 4	G	0	25	0	34	132°9	-19°8	-67°5
21 ^h 45 ^m 0	G	7	33	7	31	132°6	-20°0	-56°0
22 ^h 27 ^m 8	I	1	30	1	22	132°1	-20°2	-45°6
Means ...	...	...	...	3	29	132°53	-20°00	...
Group 631. A number of small faint spots. The group undergoes many changes, and is not seen on December 24.								
Dec. 22 ^h 27 ^m 8	I	4	56	2	31	187°7	-25°3	+10°0
23 ^h 18 ^m 6	I	3	15	2	9	187°1	-25°9	+21°4
24 ^h 25 ^m 7	I	0	0	0	0	...	...	...
25 ^h 18 ^m 4	I	8	54	7	45	189°2	-24°0	+49°9
26 ^h 20 ^m 0	I	0	65	0	72	187°6	-24°7	+61°6
Means ...	...	...	...	2	31	187°90	-24°98	...
Group 632. Several very small faint spots in a straight stream.								
Dec. 22 ^h 27 ^m 8	I	5	27	3	16	151°9	+16°9	-25°8
23 ^h 18 ^m 6	I	0	15	0	8	151°6	+16°1	-14°1
Means ...	...	...	...	2	12	151°75	+16°50	...
Group 633. Several very small scattered spots.								
Dec. 23 ^h 18 ^m 6	I	7	54	4	29	148°8	+11°2	-16°9
Means ...	...	...	...	4	29	148°8	+11°2	...
Group 634. Two spots. The following spot has divided into two portions by December 27, of which the southern has disappeared by December 31, and the northern by January 1.								
Dec. 26 ^h 20 ^m 0	I	31	71	18	41	107°9	-27°1	-18°1
27 ^h 19 ^m 0	I	67	299	37	166	107°7	-27°1	-5°3
28 ^h 20 ^m 5	I	43	321	24	178	107°3	-26°7	+7°7

Date. Greenwich Civil Time.	Where taken.	Projected Area of		Area for Group.		Mean Longi- tude of Group.	Mean Lat- itude of Group.	Longi- tude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 634—continued.								
1881. _a Dec. 29 ^h 11 ^m 8	Me	55	246	32	143	107°4	-26°7	+19°9
30 ^h 16 ^m 6	I	47	195	30	128	108°6	-26°0	+34°8
31 ^h 26 ^m 2	I	12	143	10	117	108°7	-25°7	+49°4
1882. Jan. 1 ^h 17 ^m 2	I	10	55	11	63	110°0	-25°5	+62°7
2 ^h 19 ^m 0	I	18	41	37	84	109°9	-25°4	+75°9
Means ...	...	...	...	25	115	108°44	-26°28	...
Group 635. A small faint spot, seen only as it is about to pass off at the West limb.								
Dec. 28 ^h 20 ^m 5	I	0	11	0	31	178°4	+17°1	+78°8
Means ...	...	...	...	0	31	178°4	+17°1	...
Group 636. A small faint spot.								
Dec. 30 ^h 16 ^m 6	I	0	12	0	11	21°6	+25°5	-52°2
Means ...	...	...	...	0	11	21°6	+25°5	...
Group 637. Two small spots, with two or three very small markings near them.								
Dec. 31 ^h 26 ^m 2	I	5	23	3	14	82°2	+25°2	+22°9
1882. Jan. 1 ^h 17 ^m 2	I	0	22	0	15	81°8	+25°1	+34°5
Means ...	...	...	...	2	15	82°00	+25°15	...
Group 638. An irregular cluster of many very small spots on December 31. These fluctuate in size until January 5 and 6, after which they decrease.								
Dec. 31 ^h 26 ^m 2	I	0	126	0	87	19°6	+15°8	-39°7
1882. Jan. 1 ^h 17 ^m 2	I	43	151	25	90	20°0	+16°1	-27°3
2 ^h 19 ^m 0	I	66	276	36	151	20°8	+16°0	-13°2
3 ^h 51 ^m 2	G	70	436	37	232	21°1	+15°9	+4°6
4 ^h 16 ^m 9	I	40	190	22	103	21°3	+15°7	+13°4
5 ^h 21 ^m 7	I	87	351	51	208	20°6	+15°5	+26°6
6 ^h 16 ^m 6	I	60	312	94	211	20°2	+15°0	+38°6
7 ^h 44 ^m 1	G	15	201	14	193	20°7	+15°0	+55°9
8 ^h 20 ^m 9	I	0	83	0	116	21°9	+14°9	+67°2
Means ...	...	...	...	31	155	20°69	+15°54	...

ROYAL OBSERVATORY, GREENWICH.

LEDGERS

OF

AREAS AND POSITIONS OF GROUPS OF SUN SPOTS

DEDUCED FROM THE MEASUREMENT

OF THE

SOLAR PHOTOGRAPHS

FOR EACH DAY IN THE YEARS

1882-1885.

AREAS AND HELIOGRAPHIC POSITIONS OF GROUPS OF SUN SPOTS DEDUCED FOR EACH DAY FROM THE MEASUREMENTS OF THE PHOTOGRAPHS TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT DEHRA DŪN IN INDIA, AND AT THE ROYAL ALFRED OBSERVATORY, MAURITIUS, IN THE YEARS 1882 TO 1885.

NOTE.—The Greenwich Civil Time at which the photograph was taken is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight.

The Projected Area of the Umbrae and Whole Spots is the area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Column "Longitude from Central Meridian" gives the Mean Heliographic longitude of the group, reckoned from the meridian passing through the centre of the Sun's disk at the moment of observation; longitudes west of the centre being reckoned as positive.

Dates for which the decimal of the day is not given indicate dates for which no photographic Record is at present available. In these cases the means have been taken of the areas and positions of the spot-groups as measured on the day immediately preceding, and that immediately following the day for which the photograph is lacking. These interpolated values are enclosed in brackets, but are used in taking the final means for each spot-group.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 639.							
One faint spot when first seen on January 1. A second, smaller and fainter, appears behind it on January 2. Both disappear before January 4.							
1882. _d							
Jan. 1.172	0	14	0	18	340.7	-28.3	-66.6
2.190	0	22	0	20	339.7	-28.8	-54.3
3.512	6	25	4	17	340.2	-28.1	-36.3
Means ...	...	...	1	18	340.20	-28.40	...
Group 640.							
Small faint spot.							
Jan. 4.169	0	9	0	7	313.4	-13.3	-54.5
Means ...	...	...	0	7	313.4	-13.3	...
Group 641.							
Small spot.							
Jan. 5.217	5	26	5	24	50.3	-20.8	+56.3
6.166	11	22	15	30	49.7	-20.6	+68.1
Means ...	...	...	10	27	50.00	-20.70	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 642.							
Several small spots in a straight line. The preceding spot rapidly increases in size until January 8. The rest of the group gradually disappears.							
1882. _d							
Jan. 5.217	15	41	9	23	8.5	+16.6	+14.5
6.166	46	307	31	187	10.6	+16.7	+29.0
7.441	105	471	83	371	11.3	+16.8	+46.5
8.209	39	259	40	265	12.4	+17.2	+57.7
9.439	9	43	20	94	13.4	+17.1	+74.9
Means ...	...	...	37	188	11.24	+16.88	...
Group 643.							
Two spots. These both diminish in size on the following days, the following spot disappearing before January 7, the preceding before January 8.							
Jan. 5.217	7	75	5	51	316.5	+18.5	-37.5
6.166	15	47	9	28	317.3	+18.0	-24.3
7.441	0	41	0	22	317.4	+18.1	-7.4
Means ...	...	...	5	34	317.07	+18.20	...
Group 644.							
A single spot.							
Jan. 6.166	2	20	1	11	0.1	-17.7	+18.5
Means ...	...	...	1	11	0.1	-17.7	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 645.								
Small spot on January 8. A smaller one appears close to it on January 9.								
1882. _d Jan. 8 ^h 20 ^m 9 ^s 9 ^h 43 ^m 9 ^s	2 9	12 46	8 11	38 59	237 ^h 1 ^m 236 ^h 7 ^m	+28 ^h 5 ^m +27 ^h 9 ^m	—77 ^h 6 ^m —61 ^h 8 ^m	
Means ...	...	...	10	49	236 ^h 9 ^m 0 ^s	+28 ^h 20 ^m	...	
Group 646.								
Two small faint spots.								
Jan. 9 ^h 43 ^m 9 ^s	5	38	5	37	355 ^h 7 ^m	—28 ^h 3 ^m	+57 ^h 2 ^m	
Means ...	...	...	5	37	355 ^h 7 ^m	—28 ^h 3 ^m	...	
Group 647.								
A cluster of several irregular spots. The group changes very much on the following days.								
Jan. 13 ^h 49 ^m 3 ^s 14 ^h 18 ^m 7 ^s 15 ^h 20 ^m 1 ^s 16 ^h 16 ^m 6 ^s	19 9 2 0	111 40 19 29	14 9 2 0	86 38 23 61	287 ^h 5 ^m 289 ^h 1 ^m 283 ^h 9 ^m 282 ^h 5 ^m	+22 ^h 7 ^m +22 ^h 6 ^m +23 ^h 5 ^m +23 ^h 8 ^m	+42 ^h 5 ^m +53 ^h 2 ^m +61 ^h 3 ^m +72 ^h 6 ^m	
Means ...	...	...	6	52	285 ^h 75 ^m	+23 ^h 15 ^m	...	
Group 648.								
A dark spot with several faint spots following. The spot undergoes very great changes, diminishing in size to January 15, and then increasing again; the leading spot divides into two portions on January 18, and one of the smaller fragments greatly increases in size on January 19.								
Jan. 13 ^h 49 ^m 3 ^s 14 ^h 18 ^m 7 ^s 15 ^h 20 ^m 1 ^s 16 ^h 16 ^m 6 ^s 17 ^h 15 ^m 8 ^s 18 ^h 16 ^m 3 ^s 19 ^h 28 ^m 8 ^s 20 ^h 16 ^m 2 ^s	46 35 17 28 23 17 16 20	194 129 95 106 173 126 186 132	25 18 10 17 18 16 29 71	104 69 52 64 123 119 307 473	236 ^h 4 ^m 237 ^h 3 ^m 237 ^h 2 ^m 237 ^h 7 ^m 238 ^h 4 ^m 238 ^h 9 ^m 239 ^h 2 ^m 237 ^h 9 ^m	+15 ^h 1 ^m +15 ^h 0 ^m +14 ^h 4 ^m +14 ^h 3 ^m +14 ^h 5 ^m +14 ^h 4 ^m +14 ^h 2 ^m +14 ^h 2 ^m	—8 ^h 6 ^m +1 ^h 4 ^m +14 ^h 6 ^m +27 ^h 8 ^m +41 ^h 5 ^m +55 ^h 3 ^m +70 ^h 4 ^m +80 ^h 6 ^m	
Means ...	...	...	26	164	237 ^h 88 ^m	+14 ^h 51 ^m	...	
Group 649.								
Small faint spot, probably the same as Group 645.								
Jan. 13 ^h 49 ^m 3 ^s 14 ^h 18 ^m 7 ^s 15 ^h 20 ^m 1 ^s	7 0 4	32 31 9	4 0 2	20 19 6	234 ^h 4 ^m 234 ^h 9 ^m 234 ^h 2 ^m	+28 ^h 6 ^m +28 ^h 9 ^m +29 ^h 1 ^m	—10 ^h 6 ^m —1 ^h 0 ^m +11 ^h 6 ^m	
Means ...	...	...	2	15	234 ^h 50 ^m	+28 ^h 87 ^m	...	
Group 650.								
Irregular spot, breaking up into three on January 16. The following portions are much smaller than the preceding, and disappear before January 20.								
1882. _d Jan. 13 ^h 49 ^m 3 ^s 14 ^h 18 ^m 7 ^s 15 ^h 20 ^m 1 ^s 16 ^h 16 ^m 6 ^s 17 ^h 15 ^m 8 ^s 18 ^h 16 ^m 3 ^s 19 ^h 28 ^m 8 ^s 20 ^h 16 ^m 2 ^s 21 ^h 47 ^m 0 ^s 22 ^h 39 ^m 6 ^s 23 ^h 26 ^m 7 ^s	42 46 60 45 34 23 16 26 41 10 0	363 280 237 259 185 147 160 136 114 49 16	44 37 39 26 19 12 9 16 33 12 0	382 231 156 149 98 78 90 85 92 56 28	186 ^h 3 ^m 186 ^h 4 ^m 187 ^h 2 ^m 187 ^h 7 ^m 188 ^h 1 ^m 188 ^h 2 ^m 187 ^h 9 ^m 188 ^h 2 ^m 188 ^h 5 ^m 189 ^h 1 ^m 188 ^h 2 ^m	+15 ^h 7 ^m +15 ^h 5 ^m +15 ^h 7 ^m +15 ^h 8 ^m +15 ^h 2 ^m +15 ^h 1 ^m +15 ^h 3 ^m +15 ^h 0 ^m +14 ^h 9 ^m +15 ^h 5 ^m +15 ^h 7 ^m	—58 ^h 7 ^m —49 ^h 5 ^m —35 ^h 4 ^m —22 ^h 2 ^m —8 ^h 8 ^m +4 ^h 6 ^m +19 ^h 1 ^m +30 ^h 9 ^m +48 ^h 4 ^m +61 ^h 2 ^m +71 ^h 8 ^m	
Means ...	...	...	22	131	187 ^h 80 ^m	+15 ^h 40 ^m	...	
Group 651.								
Two small spots, of which the following is only seen on January 18.								
Jan. 18 ^h 16 ^m 3 ^s 19 ^h 28 ^m 8 ^s 20 ^h 16 ^m 2 ^s 21 ^h 47 ^m 0 ^s	9 0 9 8	27 28 11 16	7 0 5 5	16 16 6 10	164 ^h 0 ^m 165 ^h 5 ^m 165 ^h 3 ^m 164 ^h 7 ^m	+23 ^h 6 ^m +24 ^h 6 ^m +24 ^h 5 ^m +24 ^h 2 ^m	—19 ^h 6 ^m —3 ^h 3 ^m +8 ^h 0 ^m +24 ^h 6 ^m	
Means ...	...	...	4	12	164 ^h 88 ^m	+24 ^h 23 ^m	...	
Group 652.								
Two very faint small spots; each divides into two parts on January 19.								
Jan. 19 ^h 28 ^m 8 ^s 20 ^h 16 ^m 2 ^s	0 0	11 29	0 0	6 16	170 ^h 7 ^m 171 ^h 1 ^m	—21 ^h 0 ^m —20 ^h 2 ^m	+1 ^h 9 ^m +13 ^h 8 ^m	
Means ...	...	...	0	11	170 ^h 90 ^m	—20 ^h 60 ^m	...	
Group 653.								
Small regular spot.								
Jan. 19 ^h 28 ^m 8 ^s 20 ^h 16 ^m 2 ^s 21 ^h 47 ^m 0 ^s 22 ^h 39 ^m 6 ^s 23 ^h 26 ^m 7 ^s 24 ^h 59 ^m 2 ^s 25 ^h 25 ^m 8 ^s 26 ^h 28 ^m 4 ^s 27 ^h 16 ^m 2 ^s 28 ^h 43 ^m 2 ^s 29 ^h 17 ^m 9 ^s	9 19 88 27 36 122 43 21 27 52 14	95 198 364 274 303 356 166 256 209 234 72	14 19 61 16 19 62 22 12 16 40 14	145 198 252 162 164 181 86 141 127 181 71	97 ^h 4 ^m 97 ^h 4 ^m 97 ^h 0 ^m 97 ^h 5 ^m 97 ^h 8 ^m 97 ^h 9 ^m 98 ^h 2 ^m 98 ^h 0 ^m 98 ^h 0 ^m 98 ^h 0 ^m 98 ^h 0 ^m	—17 ^h 2 ^m —17 ^h 5 ^m —17 ^h 2 ^m —17 ^h 2 ^m —17 ^h 2 ^m —17 ^h 3 ^m —17 ^h 6 ^m —17 ^h 6 ^m —17 ^h 4 ^m —18 ^h 0 ^m —17 ^h 2 ^m	—71 ^h 4 ^m —59 ^h 9 ^m —43 ^h 1 ^m —30 ^h 4 ^m —18 ^h 6 ^m —1 ^h 0 ^m +8 ^h 0 ^m +21 ^h 3 ^m +32 ^h 8 ^m +49 ^h 5 ^m +59 ^h 4 ^m	
Means ...	...	...	27	155	97 ^h 75 ^m	—17 ^h 40 ^m	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 654.							
Two small spots. They break up into several small fragments on January 23, but the parts of the preceding spot coalesce on January 24, and the following spot remains divided into two small portions.							
1882. d					°	°	°
Jan. 21 ⁴⁷ 0	24	65	19	50	93 ⁶	-26 ⁷	-46 ⁵
22 ³⁹ 6	9	85	6	55	93 ⁸	-28 ²	-34 ¹
23 ²⁶ 7	25	98	14	61	94 ⁸	-27 ⁸	-21 ⁶
24 ⁵⁹ 2	62	131	33	70	96 ⁴	-27 ⁰	-2 ⁵
25 ²⁵ 8	0	110	0	60	98 ⁵	-26 ⁵	+8 ³
26 ²⁸ 4	3	40	2	23	95 ⁵	-26 ⁸	+18 ⁸
Means ...	...	...	12	53	95 ⁴³	-27 ¹⁷	...
Group 655.							
Several very small spots. Only one fragment is left on January 23.							
Jan. 22 ³⁹ 6	12	36	7	20	143 ¹	+15 ⁹	+15 ²
23 ²⁶ 7	0	9	0	6	145 ²	+15 ⁹	+28 ⁸
Means ...	...	...	4	13	144 ¹⁵	+15 ⁹⁰	...
Group 656.							
Two small spots; both gradually diminish in size, and the following spot disappears before January 27.							
Jan. 24 ⁵⁹ 2	20	66	20	68	38 ⁴	-25 ²	-60 ⁵
25 ²⁵ 8	9	66	8	58	37 ¹	-25 ⁹	-53 ¹
26 ²⁸ 4	12	55	9	38	35 ⁹	-25 ⁹	-40 ⁸
27 ¹⁶ 2	3	14	2	8	38 ⁶	-25 ⁴	-26 ⁶
28 ⁴³ 2	1	11	1	6	32 ⁰	-26 ²	-16 ⁵
Means ...	...	...	8	36	36 ⁴⁰	-25 ⁷²	...
Group 657.							
Small spot.							
Jan. 25 ²⁵ 8	0	18	0	27	22 ⁸	+16 ⁹	-67 ⁴
26 ²⁸ 4	4	19	4	18	24 ⁶	+17 ⁴	-52 ¹
27 ¹⁶ 2	9	28	7	20	25 ⁰	+17 ³	-40 ²
28 ⁴³ 2	10	22	6	13	25 ²	+17 ¹	-23 ³
29 ¹⁷ 9	2	16	1	9	25 ⁷	+17 ⁴	-12 ⁹
Means ...	...	...	4	17	24 ⁶⁶	+17 ²²	...
Group 658.							
Regular spot. Several small spots break out in its neighbourhood on January 27.							
Jan. 25 ²⁵ 8	0	97	0	180	18 ²	+15 ⁸	-72 ⁰
26 ²⁸ 4	20	198	21	206	18 ⁸	+15 ⁶	-57 ⁹
27 ¹⁶ 2	36	315	28	251	18 ⁴	+16 ¹	-46 ⁸
28 ⁴³ 2	75	406	47	255	18 ²	+16 ³	-30 ³

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 658—continued.							
1882. d					°	°	°
Jan. 29 ¹⁷ 9	52	409	30	237	18 ⁴	+16 ⁴	-20 ²
30	No photograph.	(37	249	18 ⁵	+16 ³	-5 ⁸	
31	No photograph.	(45	260	18 ⁵	+16 ³	+8 ⁶)	
Feb. 1 ⁴⁴ 4	89	463	52	272	18 ⁶	+16 ²	+23 ⁰
2 ¹⁶ 2	75	594	48	387	19 ³	+15 ⁹	+33 ¹
3 ⁴⁸ 7	90	471	79	409	19 ²	+16 ²	+50 ⁵
4 ¹⁹ 1	45	327	50	364	19 ¹	+16 ³	+59 ⁷
5 ¹⁸ 8	10	101	20	199	18 ⁸	+15 ⁸	+72 ⁶
Means ...	...	...	38	272	18 ⁶⁷	+16 ¹⁰	...
Group 659.							
Three or four very small spots, arranged in a straight line.							
Jan. 27 ¹⁶ 2	10	34	5	18	57 ⁸	+10 ⁸	-7 ⁴
28 ⁴³ 2	32	215	17	114	59 ⁰	+9 ⁷	+10 ⁵
29 ¹⁷ 9	30	123	16	69	60 ⁴	+9 ⁸	+21 ⁸
30	No photograph.	(17	75	61 ⁵	+9 ⁷	+37 ²	
31	No photograph.	(19	82	62 ⁶	+9 ⁶	+52 ⁷)	
Feb. 1 ⁴⁴ 4	15	67	20	88	63 ⁷	+9 ⁵	+68 ¹
2 ¹⁶ 2	0	31	0	83	64 ¹	+10 ¹	+77 ⁹
Means ...	...	...	13	76	61 ³⁰	+9 ⁸⁹	...
Group 660.							
Several very small spots, arranged in three close and small clusters.							
Jan. 29 ¹⁷ 9	3	42	2	30	82 ³	-20 ³	+43 ⁷
Means ...	...	...	2	30	82 ³	-20 ³	...
Group 661.							
Two small spots.							
Feb. 1 ⁴⁴ 4	0	31	0	16	6 ⁴	-9 ²	+10 ⁸
2 ¹⁶ 2	1	26	0	14	8 ⁰	-9 ⁰	+21 ⁸
Means ...	...	...	0	15	7 ²⁰	-9 ¹⁰	...
Group 662.							
A small spot, with a very small one near it on February 1 and 2.							
Feb. 1 ⁴⁴ 4	31	127	26	106	308 ¹	+19 ³	-47 ⁵
2 ¹⁶ 2	29	67	14	48	308 ⁸	+19 ¹	-37 ⁴
3 ⁴⁸ 7	8	55	5	33	309 ⁰	+18 ⁹	-19 ⁷
4 ¹⁹ 1	3	25	2	14	309 ²	+18 ³	-10 ²
5 ¹⁸ 8	0	10	0	6	309 ³	+18 ⁷	+3 ¹
Means ...	...	...	9	41	308 ⁸⁸	+18 ⁸⁶	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 663. A small spot.							
1882. _d Feb. 2 ¹⁶²	0	3	0	2	299°0	+12°5	-47°2
Means ...	...	...	0	2	299°0	+12°5	...
Group 664. One very small faint spot when first seen on the East limb on February 2. The group rapidly increases in size, expanding into a long line of spots, of which the preceding one is the largest. The group undergoes constant change, and is largest shortly after passing the central meridian.							
Feb. 2 ¹⁶²	0	12	0	13	283°1	-13°4	-63°1
3 ⁴⁸⁷	16	92	12	67	281°3	-13°4	-47°4
4 ¹⁹¹	31	195	19	125	281°1	-13°6	-38°3
5 ¹⁸⁸	51	382	28	209	282°7	-13°2	-23°5
6 ¹⁵⁸	53	434	27	222	284°2	-13°6	-9°3
7 ²⁹³	76	779	39	394	284°1	-13°6	+5°5
8 ³³⁵	139	1083	75	587	286°1	-13°5	+21°3
9	No photograph.	(77	560	287°5	-13°9	+36°8)	
10 ⁴⁷⁴	98	659	79	533	288°9	-14°2	+52°2
11 ⁴⁷⁴	59	391	80	499	291°6	-14°1	+68°0
12 ⁵¹⁵	0	94	0	497	296°0	-13°7	+86°2
Means ...	...	...	40	337	286°05	-13°65	...
Group 665. A close cluster of very small spots, which gradually diminishes in size.							
Feb. 3 ⁴⁸⁷	15	32	8	17	349°7	-18°3	+21°0
4 ¹⁹¹	5	30	3	18	350°7	-17°5	+31°3
5 ¹⁸⁸	0	23	0	16	351°5	-17°2	+45°3
6 ¹⁵⁸	2	31	2	36	357°2	-15°4	+63°7
Means ...	...	...	3	22	352°28	-17°10	...
Group 666. A small spot on February 4. The spot somewhat increases in size on February 5 and 6, and several small spots form behind it. The group undergoes constant change, and is largest shortly after passing the central meridian.							
Feb. 4 ¹⁹¹	0	30	0	44	251°1	+12°6	-68°3
5 ¹⁸⁸	6	19	6	17	252°8	+13°2	-53°4
6 ¹⁵⁸	51	117	34	78	252°4	+12°4	-41°1
7 ²⁹³	14	97	8	54	259°2	+11°6	-19°4
8 ³³⁵	22	151	11	81	258°9	+12°5	-5°9
9	No photograph.	(10	103	259°2	+12°6	+8°4)	
10 ⁴⁷⁴	13	217	8	124	259°4	+12°7	+22°7
11 ⁴⁷⁴	15	78	11	52	259°7	+13°0	+36°1
12 ⁵¹⁵	0	16	0	14	261°2	+11°5	+51°4
Means ...	...	...	10	63	257°10	+12°46	...
Group 667. One spot, which slowly diminishes until its disappearance on February 10.							
1882. _d Feb. 4 ¹⁹¹	1	29	0	84	241°3	+14°0	-78°1
5 ¹⁸⁸	5	22	6	27	242°5	+13°9	-63°7
6 ¹⁵⁸	4	10	3	9	241°6	+14°3	-51°9
7 ²⁹³	0	16	0	11	241°3	+14°5	-37°3
8 ³³⁵	0	7	0	4	241°3	+14°3	-23°5
9	No photograph.	(0	4	241°9	+14°2	-8°9)	
10 ⁴⁷⁴	0	7	0	4	242°5	+14°1	+5°8
Means ...	...	...	1	20	241°77	+14°18	...
Group 668. Three spots. The middle spot disappears before February 7, and the other spots increase somewhat in size, the preceding spot becoming eventually the larger.							
Feb. 5 ¹⁸⁸	7	55	11	101	233°2	+9°1	-73°0
6 ¹⁵⁸	6	136	6	139	234°5	+8°5	-59°0
7 ²⁹³	31	275	22	204	233°4	+8°4	-45°2
8 ³³⁵	47	238	28	142	234°9	+7°8	-29°9
9	No photograph.	(38	183	235°4	+7°9	-15°4)	
10 ⁴⁷⁴	90	433	47	223	235°9	+7°9	-0°8
11 ⁴⁷⁴	90	336	44	179	236°7	+7°8	+13°1
12 ⁵¹⁵	41	230	24	136	238°6	+7°6	+28°8
13 ¹⁴³	11	117	7	77	239°5	+7°9	+38°0
14 ⁴⁵²	20	123	19	113	239°8	+7°4	+55°5
15 ⁴⁹⁷	8	51	12	74	239°4	+7°1	+68°9
Means ...	...	...	23	143	236°48	+7°95	...
Group 669. Two very small							

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 671.								Group 675—continued.							
Two small spots. Some very small spots appear between them on February 12. The members of the group increase in size until the central meridian is passed, and then diminish rapidly.								1882. _a Feb. 16 ^h 44 ^m 0 ^s	0	5	0	3	158 ^o 9	+21 ^o 7	+0 ^o 8
								17 ^h 58 ^m 3	2	41	1	24	156 ^o 3	+23 ^o 0	+13 ^o 3
								18 ^h 49 ^m 3	11	70	7	45	157 ^o 1	+22 ^o 2	+26 ^o 0
Means ...								...	...	...	1	21	157 ^o 38	+22 ^o 60	...
Group 676.								Group 677.							
Two small spots. Several small spots form round the following spot, and the preceding spot increases in size as the group approaches the W. limb.								An irregular spot, with several small spots near it.							
Feb. 12 ^h 51 ^m 5								14 ^h 45 ^m 2	31	77	17	44	212 ^o 3	+1 ^o 8	+28 ^o 0
13 ^h 14 ^m 3								15 ^h 49 ^m 7	52	305	36	211	213 ^o 7	+2 ^o 2	+43 ^o 2
14 ^h 45 ^m 2								16 ^h 44 ^m 0	40	350	38	325	215 ^o 0	+2 ^o 2	+56 ^o 9
15 ^h 49 ^m 7								17 ^h 58 ^m 3	53	153	95	263	215 ^o 8	+2 ^o 3	+72 ^o 8
16 ^h 44 ^m 0								18 ^h 49 ^m 3	11	33	30	94	210 ^o 7	+1 ^o 1	+79 ^o 6
Means ...								...	...	...	43	187	213 ^o 50	+1 ^o 92	...
Group 672.								Group 678.							
A small regular spot, followed by a number of small spots, which, however, dis- appear soon after the central meridian is passed.								Two small spots.							
Feb. 12 ^h 51 ^m 5								Feb. 13 ^h 14 ^m 3							
13 ^h 14 ^m 3								14 ^h 45 ^m 2							
14 ^h 45 ^m 2								15 ^h 49 ^m 7							
15 ^h 49 ^m 7								16 ^h 44 ^m 0							
16 ^h 44 ^m 0								17 ^h 58 ^m 3							
17 ^h 58 ^m 3								18 ^h 49 ^m 3							
18 ^h 49 ^m 3								19 ^h 57 ^m 8							
19 ^h 57 ^m 8								20 ^h 26 ^m 4							
20 ^h 26 ^m 4								21							
21								22 ^h 41 ^m 2							
22 ^h 41 ^m 2								23 ^h 28 ^m 7							
23 ^h 28 ^m 7								24 ^h 17 ^m 5							
24 ^h 17 ^m 5								25 ^h 21 ^m 1							
Means ...								Means ...							
Group 673.								Group 679.							
A small spot.								Two small spots.							
Feb. 13 ^h 14 ^m 3								Feb. 15 ^h 49 ^m 7							
Means ...								Means ...							
Group 674.								Group 680.							
Two small spots.								Two small spots.							
Feb. 13 ^h 14 ^m 3								Feb. 16 ^h 44 ^m 0							
Means ...								Means ...							
Group 675.								Group 681.							
A cluster of very small spots.								Two small spots.							
Feb. 13 ^h 14 ^m 3								Feb. 17 ^h 58 ^m 3							
14 ^h 45 ^m 2								18 ^h 49 ^m 3							
15 ^h 49 ^m 7								19 ^h 57 ^m 8							
Means ...								Means ...							

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 679. A small spot.							
1882. _a Feb. 16 ⁴⁴ 0	0	24	0	17	196 ⁸	+20 ⁹	+38 ⁷
Means ...	...	...	0	17	196 ⁸	+20 ⁹	...
Group 680. A small spot.							
Feb. 18 ⁴⁹ 3	1	8	1	8	184 ³	+15 ⁹	+53 ²
Means ...	...	...	1	8	184 ³	+15 ⁹	...
Group 681. Two small spots.							
Feb. 18 ⁴⁹ 3	4	17	2	10	164 ³	-15 ⁹	+33 ²
Means ...	...	...	2	10	164 ³	-15 ⁹	...
Group 682. A small spot.							
Feb. 18 ⁴⁹ 3	0	8	0	10	69 ⁷	+20 ⁸	-61 ⁴
Means ...	...	...	0	10	69 ⁷	+20 ⁸	...
Group 683. Several small spots. The group is not seen on February 19.							
Feb. 18 ⁴⁹ 3	0	12	0	32	51 ⁰	-13 ⁴	-80 ¹
19 ⁵⁷ 8	0	0	0	0	...	...	...
20 ²⁶ 4	0	42	0	39	50 ¹	-13 ⁶	-57 ⁷
21	No photograph.		(4	36	50 ⁵	-13 ⁶	-43 ⁰)
22 ⁴¹ 2	14	57	8	32	51 ⁰	-13 ⁶	-28 ⁴
23 ²⁸ 7	3	39	2	21	53 ¹	-13 ⁶	-14 ⁸
24 ¹⁷ 5	15	75	8	38	50 ⁶	-13 ²	-5 ⁶
25 ²¹ 1	3	78	2	40	54 ²	-12 ⁸	+11 ⁶
Means ...	...	...	3	30	51 ⁵⁰	-13 ⁴⁰	...
Group 684. A small spot.							
Feb. 22 ⁴¹ 2	10	26	10	27	17 ⁵	-14 ⁹	-61 ⁹
23 ²⁸ 7	0	10	0	8	18 ³	-14 ⁹	-49 ⁶
24 ¹⁷ 5	0	10	0	6	18 ³	-14 ⁹	-37 ⁹
25 ²¹ 1	0	10	0	6	18 ⁷	-14 ⁸	-23 ⁹
26 ⁵² 2	3	6	2	3	18 ³	-14 ⁶	-7 ⁰
Means ...	...	...	2	10	18 ²²	-14 ⁸²	...
Group 685. A spot which slowly divides into two portions about February 27.							
1882. _a Feb. 22 ⁴¹ 2	16	50	28	86	5 ¹	-13 ⁰	-74 ³
23 ²⁸ 7	19	43	19	44	6 ⁴	-12 ⁴	-61 ⁵
24 ¹⁷ 5	14	85	11	66	6 ⁰	-12 ⁴	-50 ²
25 ²¹ 1	13	105	8	65	5 ⁹	-12 ⁵	-36 ⁷
26 ⁵² 2	19	130	10	69	5 ⁸	-12 ⁷	-19 ⁵
27 ⁴³ 3	21	88	11	45	6 ³	-13 ¹	-7 ⁰
28 ²⁷ 3	20	41	10	21	6 ⁸	-13 ²	+4 ⁵
Means ...	...	...	14	57	6 ⁰⁴	-12 ⁷⁶	...
Group 686. Two very small spots.							
Feb. 27 ⁴³ 3	0	8	0	7	56 ⁶	+21 ⁸	+43 ³
Means ...	...	...	0	7	56 ⁶	+21 ⁸	...
Group 687. A regular spot. Another spot breaks out to the north of it, and some small spots appear before it on March 2. The group undergoes several changes during its course.							
Feb. 27 ⁴³ 3	25	78	65	207	292 ⁶	-14 ⁰	-80 ⁷
28 ²⁷ 3	39	114	53	154	293 ¹	-13 ⁷	-69 ²
Mar. 1 ⁴⁴ 4	55	273	46	227	293 ⁰	-13 ⁵	-53 ⁸
2 ³⁹ 7	98	500	64	328	293 ⁵	-12 ⁸	-40 ⁸
3 ⁶¹ 0	179	862	98	472	294 ⁷	-13 ³	-23 ⁷
4 ⁵⁴ 4	238	982	122	501	294 ⁹	-12 ⁴	-11 ¹
5 ²¹ 1	105	617	53	310	295 ²	-12 ⁶	-2 ¹
6 ²⁰ 1	86	712	43	365	295 ³	-12 ⁴	+11 ¹
7 ²⁹ 1	83	622	47	347	295 ⁹	-12 ⁷	+26 ¹
8 ¹⁸ 7	80	668	50	423	295 ⁹	-12 ¹	+37 ⁹
9 ³⁰ 5	94	498	76	403	295 ⁸	-12 ³	+52 ⁵
10 ¹⁹ 7	47	260	49	283	294 ⁹	-12 ¹	+63 ⁴
11 ¹⁷ 2	21	137	35	237	293 ³	-13 ³	+74 ⁶
Means ...	...	...	62	327	294 ⁴⁷	-12 ⁸⁶	...
Group 688. Two small spots.							
Feb. 28 ²⁷ 3	0	25	0	13	353 ⁵	-18 ³	-8 ⁸
Means ...	...	...	0	13	353 ⁵	-18 ³	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																		
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 689. Two small spots.									Group 693. A number of small spots in a straight line. The preceding spot increases in size.									
1882. _a									1882. _a									
Mar. 3 ^h 61 ^m	0	67	0	36	299.8	+ 8.3	-18.6		Mar. 8 ^h 187	8	49	5	28	268.2	+23.6	+10.2		
4 ^h 544	24	79	12	41	300.0	+ 8.1	- 6.0		9 ^h 305	29	119	18	75	268.0	+23.2	+24.7		
5 ^h 211	0	103	0	54	300.6	+ 9.1	+ 3.3		10 ^h 197	51	210	38	152	266.9	+23.4	+35.4		
									11 ^h 172	36	176	33	164	268.8	+23.0	+50.1		
									12 ^h 256	10	100	17	151	269.7	+23.5	+65.3		
Means ...	...	..	4	44	300.13	+ 8.50	...		Means ...	...	...	22	114	268.32	+23.34	...	
Group 689*. A small spot.									Group 694. Two small spots. The preceding spot increases in size, and the following spot diminishes.									
Mar. 4 ^h 544	3	18	2	12	346.6	- 9.9	+40.6		Mar. 8 ^h 187	0	14	0	18	189.7	-14.7	-68.3		
Means ...	...	...	2	12	346.6	- 9.9	...		9 ^h 305	10	87	8	73	188.8	-14.3	-54.5	
Group 690. A small spot.									10 ^h 197	24	108	16	74	188.7	-14.6	-42.8		
Mar. 5 ^h 211	0	13	0	14	240.2	+19.7	-57.1		11 ^h 172	28	96	16	55	188.7	-13.9	-30.0		
6 ^h 201	0	11	0	9	240.5	+19.8	-43.7		12 ^h 256	16	119	8	62	189.2	-14.3	-15.2		
Means ...	...	...	0	12	240.35	+19.75	...		13 ^h 551	19	137	10	69	189.2	-14.6	+ 1.8	
Group 691. A regular spot.									14 ^h 401	20	99	10	51	189.4	-14.5	+13.3		
Mar. 5 ^h 211	39	81	89	182	220.2	+ 0.1	-77.1		15 ^h 571	17	50	10	29	189.7	-14.7	+29.0		
6 ^h 201	37	205	41	226	221.4	- 0.4	-62.8		16 ^h 400	6	17	4	11	190.3	-14.8	+40.6		
7 ^h 291	55	383	42	290	221.3	- 0.5	-48.5		Means ...	...	...	9	49	189.30	-14.49	...	
8 ^h 187	75	453	47	285	221.0	- 0.9	-37.0		Group 695. A very small spot. It greatly increases in size, and other small spots appear behind it.									
9 ^h 305	95	553	51	299	221.7	- 0.5	-21.6		Mar. 8 ^h 187	0	7	0	20	179.4	+ 8.5	-78.6		
10 ^h 197	92	541	47	276	221.3	- 0.7	-10.2		9 ^h 305	0	30	0	33	181.9	+ 9.1	-61.4		
11 ^h 172	111	530	56	266	221.8	- 0.7	+ 3.1		10 ^h 197	2	17	1	14	183.1	+ 8.7	-48.4		
12 ^h 256	93	481	49	253	221.9	- 0.6	+17.5		11 ^h 172	20	79	13	51	183.8	+ 9.9	-34.9		
13 ^h 551	140	481	86	296	222.3	- 0.4	+34.9		12 ^h 256	32	198	18	109	185.8	+ 9.4	-18.6		
14 ^h 401	147	415	108	303	222.4	- 0.4	+46.3		13 ^h 551	112	407	59	212	187.2	+ 9.1	- 0.2		
15 ^h 571	70	296	75	317	222.7	- 0.4	+62.0		14 ^h 401	94	348	50	185	187.5	+ 9.4	+11.4		
16 ^h 400	31	146	55	260	223.3	- 0.3	+73.6		15 ^h 571	36	134	21	79	187.5	+ 9.8	+26.8		
Means ...	...	...	62	271	221.78	- 0.48	...		16 ^h 400	22	149	15	97	187.5	+10.0	+37.8	
Group 692. A number of small spots. The group undergoes constant change.									17 ^h 613	11	25	10	22	187.3	+10.0	+53.6		
Mar. 8 ^h 187	40	48	21	25	277.7	-15.3	+19.7		Means ...	...	...	19	82	185.10	+ 9.39	...	
9 ^h 305	18	81	11	49	278.8	-15.1	+35.5		Group 696. Two very small spots.									
10 ^h 197	15	67	11	49	278.1	-14.6	+46.6		Mar. 9 ^h 305	0	17	0	9	270.5	- 9.8	+27.2		
11 ^h 172	4	66	4	66	279.5	-15.3	+60.8		Means ...	...	...	0	9	270.5	- 9.8	...	
Means	12	47	278.53	-15.08	...											

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 697.							
A number of small spots arranged in two straight lines at right angles to the Sun's Equator on March 10. The group alters its shape, forming one straight line nearly parallel to the Sun's Equator on March 11. The first and last spots are then the largest. The intermediate spots disappear on March 12.							
1882. _d Mar. 10 ¹⁹ 7	28	148	14	76	243.4	-17.2	+11.9
11 ¹⁷ 2	62	543	35	304	244.7	-16.5	+26.0
12 ²⁵ 6	67	605	44	400	245.3	-15.7	+40.9
13 ⁵⁵ 1	93	393	89	374	246.3	-15.1	+58.9
14 ⁴⁰ 1	86	265	129	406	248.0	-14.6	+71.9
15 ⁵⁷ 1	0	15	0	42	242.1	-16.0	+81.4
Means ...	...	...	52	267	244.97	-15.85	...
Group 698.							
Two very small spots.							
Mar. 10 ¹⁹ 7	0	11	0	6	219.3	-8.8	-12.2
Means ...	...	...	0	6	219.3	-8.8	...
Group 699.							
A small regular spot, followed by several smaller spots. It becomes a large irregular cluster of many spots on March 17, quite unlike its appearance on March 16.							
Mar. 11 ¹⁷ 2	0	59	0	179	136.5	-16.9	-82.2
12 ²⁵ 6	14	89	18	115	136.0	-17.6	-68.4
13 ⁵⁵ 1	62	203	50	167	134.7	-18.2	-52.7
14 ⁴⁰ 1	70	319	48	218	133.1	-17.8	-43.0
15 ⁵⁷ 1	33	292	19	166	134.0	-18.3	-26.7
16 ⁴⁰ 0	45	268	24	143	133.6	-18.3	-16.1
17 ⁶¹ 3	51	363	26	186	135.5	-19.8	+1.8
18 ⁴⁸ 8	50	315	26	165	135.7	-19.2	+13.5
19 ⁵¹ 7	25	226	14	129	135.2	-18.9	+26.6
20 ⁴⁰ 0	62	288	40	185	134.9	-18.6	+37.9
21 ⁴⁷ 6	27	140	22	113	134.4	-18.6	+51.6
22 ⁴¹ 6	5	42	5	45	133.6	-17.7	+63.2
Means ...	...	...	24	151	134.77	-18.33	...
Group 700.							
A small spot.							
Mar. 13 ⁵⁵ 1	0	13	0	8	156.1	+11.7	-31.3
Means ...	...	...	0	8	156.1	+11.7	...
Group 701.							
Two or three very small spots.							
1882. _d Mar. 14 ⁴⁰ 1	0	27	0	25	124.0	+17.4	-52.1
15 ⁵⁷ 1	5	17	3	11	124.9	+17.4	-35.8
16 ⁴⁰ 0	0	14	0	9	124.3	+17.8	-25.4
Means ...	...	...	1	15	124.40	+17.53	...
Group 702.							
A large regular spot, with several small spots close behind it. One of these finally becomes nearly as large as the first spot.							
Mar. 15 ⁵⁷ 1	21	86	75	312	76.6	-22.8	-84.1
16 ⁴⁰ 0	55	196	89	325	75.8	-22.8	-73.9
17 ⁶¹ 3	70	303	66	282	76.0	-23.1	-57.7
18 ⁴⁸ 8	126	463	92	342	75.7	-23.0	-46.5
19 ⁵¹ 7	116	512	71	315	75.5	-22.9	-33.1
20 ⁴⁰ 0	153	752	86	420	74.7	-22.5	-22.3
21 ⁴⁷ 6	219	1164	114	610	73.4	-22.3	-9.4
22 ⁴¹ 6	228	911	118	473	74.8	-22.4	+4.4
23 ⁴⁹ 5	168	888	91	482	74.5	-22.0	+18.3
24 ³⁵ 1	119	768	70	450	73.7	-21.6	+28.7
25 ⁴¹ 8	192	853	133	595	74.1	-21.6	+43.3
26 ⁴⁹ 7	108	694	101	642	74.2	-20.8	+57.6
27 ³⁹ 8	57	317	81	445	75.0	-20.9	+70.3
28 ²² 3	12	146	31	380	74.6	-21.1	+80.6
Means ...	...	...	87	434	74.90	-22.13	...
Group 703.							
Two spots. These spots become much larger, and several smaller spots appear between and around them on March 21 and following days.							
Mar. 19 ⁵¹ 7	19	119	10	60	108.3	-5.6	-0.3
20 ⁴⁰ 0	43	353	22	180	108.0	-5.1	+11.0
21 ⁴⁷ 6	130	734	72	409	108.7	-5.6	+25.9
22 ⁴¹ 6	224	939	147	612	110.5	-5.3	+40.1
23 ⁴⁹ 5	164	762	140	657	111.0	-5.4	+54.8
24 ³⁵ 1	39	292	46	359	111.4	-5.3	+66.4
25 ⁴¹ 8	32	138	69	300	109.8	-5.4	+79.0
Means ...	...	...	72	368	109.67	-5.39	...
Group 704.							
Two spots, and two or three small markings near them.							
Mar. 20 ⁴⁰ 0	56	182	61	202	154.7	+20.6	+57.7
21 ⁴⁷ 6	18	92	35	174	153.3	+21.8	+70.5
Means ...	...	...	48	188	154.00	+21.20	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 705.							
A large regular spot, with some small companions.							
1882. d					°	°	°
Mar. 21.476	20	119	60	361	1.2	-10.3	-81.6
22.416	74	439	103	615	0.6	-10.3	-69.8
23.495	119	550	100	462	2.2	-10.7	-54.0
24.351	68	542	46	364	2.6	-10.2	-42.4
25.418	159	745	89	421	2.4	-10.4	-28.4
26.497	160	643	81	329	3.0	-10.0	-13.4
27.398	156	650	78	324	3.3	-10.2	-1.4
28.223	76	551	38	279	3.5	-10.1	+9.7
29.164	80	559	44	301	3.4	-10.3	+22.0
30.386	100	554	65	354	4.0	-10.3	+38.6
31.437	131	498	111	415	5.0	-10.4	+53.5
Apr. 1.410	75	347	92	437	6.0	-10.5	+65.3
2.565	22	85	60	234	3.8	-9.6	+80.4
Means ...	...	...	74	377	3.15	-10.25	...
Group 706.							
A very small spot.							
Mar. 22.416	0	18	0	9	76.7	-14.0	+6.3
Means ...	...	...	0	9	76.7	-14.0	...
Group 707.							
A small spot.							
Mar. 22.416	6	20	3	12	40.3	-20.1	-30.1
23.495	16	62	8	33	41.0	-20.9	-15.2
24.351	0	18	0	9	41.5	-20.5	-3.5
25.418	3	17	2	9	41.6	-20.6	+10.8
26.497	0	8	0	5	41.5	-20.6	+24.9
Means ...	...	...	3	14	41.18	-20.54	...
Group 708.							
A small spot. A second appears on March 24.							
Mar. 23.495	17	31	11	20	95.3	-15.7	+39.1
24.351	14	61	11	47	95.5	-15.8	+50.5
25.418	23	46	28	55	97.3	-14.6	+66.5
26.497	5	61	14	172	97.9	-14.7	+81.3
Means ...	...	...	16	74	96.50	-15.20	...
Group 709.							
Two spots, which rapidly increase up to March 25. Other small spots appear near them on March 25 and following days.							
1882. d					°	°	°
Mar. 23.495	12	36	7	19	50.1	+12.8	-6.1
24.351	14	120	7	63	49.5	+12.2	+4.5
25.418	71	210	40	117	49.8	+11.7	+19.0
26.497	110	577	69	367	50.7	+11.5	+34.1
27.398	91	522	70	400	51.0	+11.2	+46.3
28.223	42	370	42	374	51.9	+10.8	+58.1
29.164	32	192	50	306	51.5	+10.3	+70.1
30.386	0	23	0	172	50.1	+11.3	+84.7
Means ...	...	...	36	227	50.58	+11.48	...
Group 710.							
A small spot, not detected on March 26, 27, and 28.							
Mar. 25.418	15	18	9	10	20.2	+20.6	-10.6
26.497	0	0	0	0	...	...	...
27.398	0	0	0	0	...	...	...
28.223	0	0	0	0	...	...	...
29.164	0	22	0	17	21.9	+20.3	+40.5
30.386	0	9	0	10	22.9	+21.1	+57.5
31.437	0	10	0	19	22.7	+21.1	+71.2
Means ...	...	...	1	8	21.93	+20.78	...
Group 711.							
A very small spot on March 26 and 27. The spot shows a large proper motion on the following days, and several smaller spots appear near it.							
Mar. 26.497	2	11	2	10	317.7	-12.5	-58.9
27.398	2	7	2	5	318.4	-12.8	-46.3
28.223	0	14	0	9	320.2	-12.3	-33.6
29.164	0	9	0	5	319.6	-12.1	-21.8
30.386	0	7	0	3	318.7	-13.8	-6.7
31.437	8	17	4	9	321.7	-12.8	+10.2
Apr. 1.410	8	29	4	16	324.8	-11.8	+26.1
2.565	0	59	0	40	326.1	-10.8	+42.7
3.571	3	14	3	13	326.4	-10.5	+56.3
4.486	0	4	0	6	326.3	-10.5	+68.3
Means ...	...	...	2	12	321.99	-11.99	...
Group 712.							
Two or three very small spots.							
Mar. 27.398	5	18	3	10	19.5	+10.6	+14.8
Means ...	...	...	3	10	19.5	+10.6	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.				Umbra.	Whole Spot.							
Group 713. A small regular spot.									Group 716—continued.								
1882. d									1882. d								
Mar. 29 164	0	33	0	77	268.6	+25.4	-72.8		Apr. 8 397	13	29	7	17	233.5	-18.9	+27.1	
30 386	13	78	16	91	267.4	+25.1	-58.0		9 474	0	17	0	11	233.3	-19.0	+41.1	
31 437	28	114	23	96	267.2	+24.9	-44.3		10 146	3	11	3	9	233.4	-18.9	+50.1	
Apr. 1 410	26	119	18	83	267.3	+25.0	-31.4		Means ...	...	...	8	31	233.24	-19.28	...	
2 565	42	104	26	64	267.0	+25.3	-16.4		Group 717. Two small spots on April 1. Other spots appear on the following days, and the group increases in size, and forms a long straight line of spots, of which the preceding spot is the largest.								
3 571	21	92	12	54	266.8	+25.4	-3.3		Apr. 1 410	0	17	0	21	236.7	+19.0	-62.0	
4 486	20	67	12	40	266.5	+26.0	+8.5		2 565	0	31	0	28	231.4	+19.4	-52.0	
5 562	8	26	5	17	266.3	+25.9	+22.5		3 571	22	65	16	48	231.5	+18.9	-38.6	
Means ...	...	...	14	65	267.14	+25.38	...		4 486	83	400	52	250	231.3	+19.3	-26.7	
Group 714. Several small spots close together.									5 562	76	479	44	273	233.4	+19.8	-10.4	
Mar. 30 386	8	78	5	43	328.5	+15.9	+3.1		6 569	64	522	35	291	233.3	+19.3	+2.7	
31 437	23	79	13	44	327.4	+15.3	+15.9		7 336	100	471	58	269	233.1	+19.5	+12.7	
Apr. 1 410	0	37	0	23	328.1	+15.1	+29.4		8 397	70	300	44	191	234.9	+19.0	+28.5	
2 565	0	28	0	21	326.9	+15.5	+43.5		9 474	14	62	11	49	237.9	+18.1	+45.7	
3 571	17	52	19	57	329.7	+14.3	+59.6		10 146	9	32	9	31	238.0	+18.3	+54.7	
4 486	3	10	7	20	331.0	+14.3	+73.0		Means ...	...	...	27	145	234.15	+19.06	...	
Means ...	...	...	7	35	328.60	+15.07	...		Group 718. A regular spot.								
Group 715. A small regular spot.									Apr. 1 410	16	73	30	140	224.0	-0.1	-74.7	
Mar. 30 386	5	23	8	38	251.8	-14.4	-73.6		2 565	28	193	28	191	223.9	-0.2	-59.5	
31 437	12	43	11	42	252.0	-14.4	-59.5		3 571	35	192	25	139	224.2	+0.1	-45.9	
Apr. 1 410	8	23	6	16	252.5	-14.3	-46.2		4 486	61	297	37	181	224.0	+0.6	-34.0	
2 565	0	34	0	20	252.4	-14.2	-31.0		5 562	77	284	41	152	224.7	+1.1	-19.1	
3 571	3	19	2	10	252.5	-14.4	-17.6		6 569	67	337	34	171	225.1	+0.8	-5.5	
4 486	0	11	0	6	252.3	-14.3	-5.7		7 336	74	317	37	161	225.1	+1.3	+4.7	
Means ...	...	...	5	22	252.25	-14.33	...		8 397	49	293	26	156	225.4	+1.5	+19.0	
Group 716. Two spots. The following and smaller spot disappears before April 8.									9 474	41	235	25	142	225.4	+1.7	+33.2	
Apr. 1 410	3	16	4	18	233.9	-19.7	-64.8		10 146	24	161	16	110	225.2	+1.7	+41.9	
2 565	0	49	0	40	231.6	-20.1	-51.8		11 502	25	148	25	148	225.2	+2.0	+59.8	
3 571	30	115	19	74	233.2	-19.8	-36.9		12 131	12	69	16	94	225.4	+2.2	+68.3	
4 486	44	101	25	57	232.9	-19.6	-25.1		13 153	2	35	6	121	224.9	+2.5	+81.3	
5 562	17	68	9	36	233.5	-18.9	-10.3		Means ...	...	...	27	147	224.81	+1.17	...	
6 569	12	38	6	19	233.8	-19.0	+3.2		Group 719. A very small spot.								
7 336	10	58	5	30	233.3	-18.9	+12.9		Apr. 4 486	2	4	1	3	208.9	+6.0	-49.1	
									Means ...	...	...	1	3	208.9	+6.0	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 720. A small regular spot.								Group 724. A small spot.							
1882. _d Apr. 5.562	0	18	0	12	199.6	-10.4	-44.2	1882. _d Apr. 8.397	4	15	2	8	175.4	-14.9	-31.0
6.569	8	28	5	16	201.1	-10.3	-29.5	Means ...	...	...	2	8	175.4	-14.9	...
7.336	9	35	5	19	202.3	-9.3	-18.1	Group 725. A somewhat scattered group of small spots.							
8.397	11	29	5	15	204.0	-9.2	-2.4	Apr. 9.474	3	39	6	69	118.4	-8.7	-73.8
9.474	8	17	4	9	205.2	-9.3	+13.0	10.146	2	50	3	58	118.2	-8.6	-65.1
10.146	0	11	0	6	205.3	-8.9	+22.0	11.502	62	284	47	213	116.8	-9.1	-48.6
11.502	13	48	9	31	206.1	-8.2	+40.7	12.131	9	116	6	75	117.0	-9.2	-40.1
12.131	0	17	0	13	206.5	-7.9	+49.4	13.153	0	188	0	105	117.5	-9.0	-26.1
13.153	0	7	0	8	206.9	-7.3	+63.3	14.462	49	180	24	92	117.2	-8.7	-9.1
Means ...	...	...	3	14	204.11	-8.98	...	Means ...	...	...	14	102	117.52	-8.88	...
Group 721. Several very small spots in a straight line, of which the preceding spot is the largest. The following spots disappear before April 10.								Group 726. Three small spots when first seen on E. limb. The group undergoes very great and violent changes, and increases in size very rapidly indeed. The most striking changes occur on April 16, 17, 18, and 19.							
Apr. 6.569	0	26	0	20	186.9	+16.6	-43.7	Apr. 10.146	0	22	0	89	99.3	-21.3	-84.0
7.336	47	127	30	84	186.5	+16.1	-33.9	11.502	32	263	48	417	93.0	-20.5	-72.4
8.397	47	147	27	82	188.9	+15.9	-17.5	12.131	27	165	29	186	93.0	-20.8	-64.1
9.474	13	110	7	59	189.7	+15.9	-2.5	13.153	31	291	25	226	94.7	-21.4	-48.9
10.146	10	37	6	20	191.3	+16.1	+8.0	14.462	64	436	40	270	92.9	-21.1	-33.4
11.502	8	18	4	11	191.4	+15.4	+26.0	15.283	45	311	25	219	92.7	-21.2	-22.8
Means ...	...	...	12	46	189.12	+16.00	...	16.546	45	298	24	156	93.2	-19.6	-5.7
Group 722. A regular spot.								17.587	396	1693	204	880	92.5	-18.3	+7.4
Apr. 6.569	17	118	27	192	162.3	+20.1	-68.3	18.542	445	2510	244	1371	92.3	-18.0	+19.9
7.336	40	130	48	154	159.8	+20.4	-60.6	19.165	275	2063	160	1207	92.9	-17.5	+28.7
8.397	68	236	55	191	161.2	+20.6	-45.2	20.421	412	2517	294	1808	92.6	-17.7	+45.0
9.474	69	254	45	166	161.2	+20.6	-31.0	21.409	457	2404	436	2258	92.3	-17.5	+57.7
10.146	38	266	23	161	161.4	+20.9	-21.9	22.164	149	1133	202	1487	92.6	-17.2	+68.0
11.502	68	320	38	179	160.6	+20.9	-4.8	23.512	59	375	173	1094	87.9	-18.2	+81.1
12.131	46	296	26	166	160.7	+20.9	+3.6	Means ...	...	...	136	833	92.99	-19.31	...
13.153	34	251	20	146	160.6	+21.0	+17.0	Group 727. A small spot.							
14.462	67	257	46	175	160.3	+21.1	+34.0	Apr. 11.502	9	23	5	14	182.2	+19.8	+16.8
15.283	26	178	21	141	160.4	+20.6	+44.9	Means ...	...	...	5	14	182.2	+19.8	...
16.546	24	146	30	178	160.5	+21.1	+61.6	Group 723. A small spot on April 7. A second is seen near the first on April 8.							
17.587	0	115	0	285	160.3	+21.1	+75.2	Apr. 7.336	4	14	2	8	203.4	-16.0	-17.0
Means ...	...	...	32	178	160.78	+20.78	...	8.397	15	73	8	37	202.9	-16.0	-3.5
Group 723. A small spot on April 7. A second is seen near the first on April 8.								Means ...	...	...	5	23	203.15	-16.00	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 728.							
A V-shaped group of spots on April 11 and 12. The group changes very rapidly, increasing in size between April 11 and 12. On April 13 it forms a straight line, the first and last spots being the largest.							
1882. d					°	°	°
Apr. 11:502	127	530	71	294	142.2	-18.6	-23.2
12:131	101	594	53	314	142.4	-18.6	-14.7
13:153	81	767	45	393	143.0	-18.3	-0.6
14:462	152	878	82	472	143.1	-18.2	+16.8
15:283	53	642	31	373	144.0	-18.6	+28.5
16:546	123	1057	89	769	144.5	-18.0	+45.6
17:587	192	970	190	940	144.0	-17.8	+58.9
18:542	47	488	77	795	145.4	-17.7	+73.0
19:165	11	117	20	223	139.9	-17.1	+75.7
Means ...	...	...	73	508	143.17	-18.10	...
Group 729.							
A very large spot, with three or four spots following it. The great spot undergoes constant change, especially after passing the central meridian.							
Apr. 13:153	69	602	130	1138	67.8	-27.8	-75.8
14:462	317	2002	340	2123	65.5	-28.1	-60.8
15:283	236	2175	191	1757	66.1	-28.1	-49.4
16:546	371	3208	239	2059	66.3	-28.4	-32.6
17:587	663	3388	384	1963	65.3	-28.7	-19.8
18:542	846	3693	465	2031	64.7	-28.6	-7.7
19:165	279	3635	152	1988	64.6	-28.5	+0.4
20:421	593	3343	339	1908	64.2	-28.8	+16.6
21:409	688	3388	428	2109	64.0	-28.7	+29.4
22:164	237	1960	165	1372	64.0	-28.5	+39.4
23:512	275	1846	264	1771	63.5	-28.4	+56.7
24:546	216	1176	319	1734	63.4	-28.6	+70.2
25:166	41	331	90	718	62.4	-28.6	+77.4
Means ...	...	...	270	1744	64.75	-28.45	...
Group 730.							
A small spot.							
Apr. 14:462	0	18	0	17	178.9	+20.8	+52.6
Means ...	...	...	0	17	178.9	+20.8	...
Group 731.							
A disturbed area, in which small spots appear and disappear at irregular intervals. No spots are seen on April 17.							
Apr. 14:462	8	60	5	33	107.5	-21.9	-18.8
15:283	2	27	1	14	108.4	-21.5	-7.1
16:546	0	10	0	5	109.8	-17.9	+10.9
17:587	0	0	0	0	...	...	...
18:542	5	35	3	22	109.8	-20.8	+37.4
Group 731—continued.							
1882. d					°	°	°
Apr. 19:165	3	54	2	41	111.2	-19.9	+47.0
20:421	17	74	19	86	112.4	-19.2	+64.8
21:409	0	28	0	70	113.9	-18.7	+79.3
Means ...	...	...	4	34	110.43	-19.99	...
Group 732.							
A small spot.							
Apr. 14:462	8	76	7	65	72.6	-21.4	-53.7
15:283	13	58	9	40	72.9	-21.4	-42.6
16:546	0	42	0	25	72.4	-22.0	-26.5
17:587	15	35	8	19	72.2	-21.9	-12.9
18:542	0	12	0	6	71.9	-21.8	-0.5
Means ...	...	...	5	31	72.40	-21.70	...
Group 733.							
Two small spots. The group increases in size on April 16, 17, and 18, and forms an irregular group of small spots. On the following days all but two of these spots disappear.							
Apr. 15:283	7	42	6	37	59.5	-13.6	-56.0
16:546	41	194	27	126	59.9	-12.9	-39.0
17:587	85	317	47	177	60.4	-13.8	-24.7
18:542	84	354	44	183	61.5	-13.8	-10.9
19:165	0	145	0	74	62.4	-13.5	-1.8
20:421	52	244	27	127	61.8	-13.3	+14.2
21:409	37	221	21	125	62.2	-13.2	+27.6
22:164	8	77	5	49	61.7	-13.7	+37.1
23:512	13	23	12	21	63.5	-13.3	+56.7
24:546	0	3	0	4	64.5	-12.8	+71.3
Means ...	...	...	19	92	61.74	-13.39	...
Group 734.							
A regular spot, with a small companion.							
Apr. 16:546	10	70	27	186	21.0	+10.7	-77.9
17:587	37	160	46	200	20.6	+10.9	-64.5
18:542	68	380	57	323	20.6	+10.6	-51.8
19:165	37	313	27	224	21.4	+10.9	-42.8
20:421	55	326	32	189	22.0	+10.7	-25.6
21:409	75	444	40	237	22.7	+11.4	-11.9
22:164	41	300	21	157	23.3	+11.4	-1.3
23:512	69	352	38	192	24.0	+11.6	+17.2
24:546	52	245	31	149	24.3	+11.4	+31.1
25:166	12	158	8	109	25.1	+12.1	+40.1
26:353	22	80	20	74	24.5	+11.7	+55.3
27:161	4	102	5	134	24.7	+11.7	+66.1
Means ...	...	...	29	181	22.85	+11.26	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 735. A regular spot.							
1882. d					°	°	°
Apr. 17 ^h 58 ^m 7	0	72	0	203	4.4	-11.6	-80.7
18 ^h 54 ^m 2	38	150	47	187	5.6	-11.3	-66.8
19 ^h 16 ^m 5	33	154	31	144	6.3	-11.2	-57.9
20 ^h 42 ^m 1	46	259	30	172	6.7	-11.1	-40.9
21 ^h 40 ^m 9	96	339	54	193	6.6	-10.2	-28.0
22 ^h 16 ^m 4	52	296	27	157	6.9	-10.4	-17.7
23 ^h 51 ^m 2	64	364	32	183	6.9	-10.4	+0.1
24 ^h 54 ^m 6	63	307	32	158	6.9	-10.6	+13.7
25 ^h 16 ^m 6	43	259	23	141	7.7	-10.3	+22.7
26 ^h 35 ^m 3	32	257	20	163	6.8	-11.3	+37.6
27 ^h 16 ^m 1	27	244	20	182	6.8	-10.1	+48.2
28 ^h 55 ^m 0	47	178	59	225	7.3	-10.3	+67.1
Means ...	...	...	31	176	6.58	-10.73	...
Group 736. Two or three very small spots, which disappear before April 21.							
Apr. 18 ^h 54 ^m 2	2	16	1	11	36.0	+15.1	-36.4
19 ^h 16 ^m 5	0	56	0	33	37.8	+14.7	-26.4
20 ^h 42 ^m 1	0	45	0	24	37.0	+14.9	-10.6
Means ...	...	...	0	23	36.93	+14.90	...
Group 737. Several very small spots, which break out in the same area of disturbance as Group 736.							
Apr. 22 ^h 16 ^m 4	0	21	0	12	39.2	+15.2	+14.6
23 ^h 51 ^m 2	26	71	16	44	37.2	+15.0	+30.4
24 ^h 54 ^m 6	10	44	7	33	37.3	+15.2	+44.1
25 ^h 16 ^m 6	0	11	0	9	32.8	+14.6	+47.8
26 ^h 35 ^m 3	19	85	22	103	33.0	+14.6	+63.8
27 ^h 16 ^m 1	19	127	35	284	34.1	+15.1	+75.5
Means ...	...	...	13	81	35.60	+14.95	...
Group 738. A small regular spot, which rapidly diminishes in size.							
Apr. 21 ^h 40 ^m 9	11	68	20	124	321.3	+7.1	-73.3
22 ^h 16 ^m 4	3	52	4	59	321.7	+6.7	-62.9
23 ^h 51 ^m 2	7	23	5	16	322.1	+6.8	-44.7
Means ...	...	...	10	66	321.70	+6.87	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 739. Several very small spots.							
1882. d					°	°	°
Apr. 23 ^h 51 ^m 2	3	20	1	11	16.5	+10.8	+9.7
24 ^h 54 ^m 6	30	63	17	35	16.7	+9.7	+23.5
25 ^h 16 ^m 6	3	32	2	20	18.0	+9.9	+33.0
26 ^h 35 ^m 3	2	27	1	21	17.7	+9.6	+48.5
27 ^h 16 ^m 1	0	20	0	24	20.2	+10.7	+61.6
Means ...	...	...	4	22	17.82	+10.14	...
Group 740. Several very small spots. The group shows frequent changes.							
Apr. 26 ^h 35 ^m 3	0	10	0	5	344.8	+14.5	+15.6
27 ^h 16 ^m 1	2	92	1	53	343.2	+14.7	+24.6
28 ^h 55 ^m 0	32	141	24	104	344.3	+14.8	+44.1
29	No photograph.	(12	65	343.3	+15.1	+56.5)	
30 ^h 58 ^m 1	0	17	0	26	342.2	+15.4	+68.8
Means ...	...	...	7	51	343.56	+14.90	...
Group 741. A small spot.							
Apr. 27 ^h 16 ^m 1	0	11	0	9	269.3	+12.0	-49.3
28 ^h 55 ^m 0	15	46	9	27	270.3	+11.0	-29.9
Means ...	...	...	5	18	269.80	+11.50	...
Group 742. A small spot.							
Apr. 28 ^h 55 ^m 0	24	98	14	56	281.6	+19.7	-18.6
29	No photograph.	(13	49	283.0	+19.5	-3.8)	
30 ^h 58 ^m 1	20	76	11	42	284.5	+19.3	+11.1
May 1 ^h 53 ^m 0	7	22	4	13	284.5	+19.1	+23.7
2 ^h 54 ^m 9	9	34	6	25	288.9	+19.3	+41.5
3 ^h 60 ^s 5	0	4	0	4	287.9	+19.2	+54.5
Means ...	...	...	8	32	285.07	+19.35	...
Group 743. An irregular spot with a small companion.							
Apr. 30 ^h 58 ^m 1	34	76	26	58	228.1	+14.9	-45.3
May 1 ^h 53 ^m 0	47	181	30	115	227.0	+14.9	-33.8
2 ^h 54 ^m 9	41	212	23	119	227.2	+15.0	-20.2

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 743—continued.							
1882. _d May 3 ^h 60 ^m 5	10	71	5	38	227°9'	+15°6'	— 5°5'
4 ^h 31 ^m 4	0	8	0	4	229°0'	+15°7'	+ 5°0'
5 ^h 54 ^m 9	11	29	6	17	229°7'	+15°7'	+22°0'
Means ...	...	...	15	59	228°15'	+15°30'	...
Group 744. A large regular spot.							
May 1 ^h 53 ^m 0	29	117	292	1184	175°6'	+23°5'	—85°2'
2 ^h 54 ^m 9	60	329	101	557	177°9'	+23°1'	—69°5'
3 ^h 60 ^m 5	179	532	182	543	177°8'	+23°5'	—55°6'
4 ^h 31 ^m 4	108	530	87	428	178°3'	+23°0'	—45°7'
5 ^h 54 ^m 9	213	745	139	485	177°4'	+23°0'	—30°3'
6 ^h 49 ^m 5	231	836	137	494	176°9'	+23°3'	—18°3'
7 ^h 45 ^m 1	222	900	125	506	176°3'	+23°1'	— 6°2'
8 ^h 40 ^m 1	201	831	113	468	176°2'	+23°1'	+ 6°2'
9 ^h 11 ^m 3	126	788	73	456	176°4'	+22°8'	+15°8'
10 ^h 48 ^m 6	219	801	147	537	175°9'	+23°2'	+33°5'
11 ^h 45 ^m 6	160	578	130	468	176°0'	+22°8'	+46°4'
12 ^h 59 ^m 7	105	387	125	462	176°1'	+23°1'	+61°6'
13 ^h 43 ^m 9	0	255	0	498	176°2'	+22°5'	+72°8'
Means ...	...	...	127	545	176°69'	+23°08'	...
Group 745. A small spot.							
May 2 ^h 54 ^m 9	0	13	0	8	211°8'	+15°4'	—35°6'
Means ...	...	...	0	8	211°8'	+15°4'	...
Group 746. Two or three small spots close together.							
May 2 ^h 54 ^m 9	0	26	0	77	169°3'	+22°0'	—78°1'
3 ^h 60 ^m 5	8	37	11	53	167°5'	+23°5'	—65°9'
4 ^h 31 ^m 4	0	28	0	29	167°7'	+23°8'	—56°3'
5 ^h 54 ^m 9	28	53	21	40	167°4'	+24°6'	—40°3'
6 ^h 49 ^m 5	20	43	13	28	167°1'	+24°7'	—28°1'
7 ^h 45 ^m 1	10	29	6	17	166°8'	+24°6'	—15°7'
8 ^h 40 ^m 1	14	43	8	25	165°7'	+24°9'	— 4°3'
9 ^h 11 ^m 3	0	27	0	15	166°7'	+24°5'	+ 6°1'
10 ^h 48 ^m 6	9	62	5	38	165°8'	+25°0'	+23°4'
Means ...	...	...	7	36	167°11'	+24°18'	...
Group 747. Two very small faint spots.							
1882. _d May 3 ^h 60 ^m 5	5	25	3	13	234°0'	+18°7'	+ 0°6'
4 ^h 31 ^m 4	0	8	0	4	235°2'	+18°6'	+11°2'
Means ...	...	...	2	9	234°60'	+18°65'	...
Group 748. Two very small faint spots.							
May 3 ^h 60 ^m 5	9	18	4	9	218°6'	+ 5°5'	—14°8'
Means ...	...	...	4	9	218°6'	+ 5°5'	...
Group 749. A regular spot, with several small spots near it. The group undergoes several small changes.							
May 3 ^h 60 ^m 5	0	43	0	127	155°3'	+20°4'	—78°1'
4 ^h 31 ^m 4	14	70	21	102	157°0'	+20°1'	—67°0'
5 ^h 54 ^m 9	66	225	59	199	156°7'	+20°3'	—51°0'
6 ^h 49 ^m 5	103	430	73	304	156°5'	+20°6'	—38°7'
7 ^h 45 ^m 1	83	356	52	219	156°1'	+20°5'	—26°4'
8 ^h 40 ^m 1	88	379	50	216	155°6'	+21°2'	—14°4'
9 ^h 11 ^m 3	43	300	23	166	156°5'	+21°3'	— 4°1'
10 ^h 48 ^m 6	96	424	55	241	156°6'	+21°6'	+14°2'
11 ^h 45 ^m 6	62	372	38	229	156°5'	+21°3'	+26°9'
12 ^h 59 ^m 7	45	280	33	207	155°9'	+21°8'	+41°4'
13 ^h 43 ^m 9	33	134	30	119	155°1'	+20°7'	+51°7'
14 ^h 52 ^m 8	8	37	10	48	153°6'	+21°1'	+64°7'
Means ...	...	...	37	181	155°95'	+20°91'	...
Group 750. A small spot.							
May 4 ^h 31 ^m 4	0	19	0	36	148°6'	—19°3'	—75°4'
5 ^h 54 ^m 9	0	12	0	12	149°4'	—19°4'	—58°3'
Means ...	...	...	0	24	149°00'	—19°35'	...
Group 751. A small spot.							
May 5 ^h 54 ^m 9	0	10	0	15	277°2'	—16°0'	+69°5'
Means ...	...	...	0	15	277°2'	—16°0'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	
		Umbra.	Whole Spot.	Umbra.	Whole Spot.				Umbra.	Whole Spot.	Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 752. A regular spot, with some smaller spots following it.									Group 756. A small regular spot.									
1882. d									1882. d									
May 5.549	9	28	14	47	135.2	- 4.8	-72.5		May 8.401	22	51	32	73	100.4	-13.7	-69.6		
6.495	62	256	62	254	135.4	- 4.4	-59.8		9.113	2	45	2	45	100.8	-13.5	-59.8		
7.451	106	452	77	337	134.7	- 5.0	-47.8		10.486	9	35	6	24	100.4	-14.0	-42.0		
8.401	106	456	64	276	136.3	- 4.7	-33.7		Means ...	...	...	13	47	100.53	-13.73	...	
9.113	41	396	22	215	138.4	- 4.7	-22.2		Group 757. A small spot on May 9, but much larger on May 10. It is partly hidden by the wire on May 9.									
10.486	89	338	45	169	140.4	- 4.6	- 2.0		May 9.113	2	8	2	9	222.6	+14.2	+62.0		
11.456	57	286	29	147	142.6	- 4.2	+13.0		10.486	16	81	43	216	220.2	+16.6	+77.8		
12.597	40	259	23	148	143.3	- 4.7	+28.8		Means ...	...	...	23	113	221.40	+15.40	...	
13.439	52	204	35	137	145.2	- 4.7	+41.8		Group 758. Three very small spots.									
14.528	50	167	48	157	146.9	- 3.8	+58.0		May 10.486	0	24	0	16	180.3	-16.5	+37.9		
15.441	17	64	27	101	148.4	- 3.7	+71.5		Means ...	...	...	0	16	180.3	-16.5	...	
Means ...	...	...	41	181	140.62	- 4.48	...		Group 759. Two very large spots of irregular outline. The preceding spot breaks up into a number of fragments after passing the central meridian.								
Group 753. Two very small spots close together, and a third at a little distance.									Group 760. A number of spots in a straight line. The group gradually diminishes, and only the preceding spot is left on May 22.									
May 7.451	0	17	0	9	198.7	- 6.7	+16.2		May 10.486	43	171	140	560	60.6	-28.1	-81.8		
8.401	0	10	0	5	199.6	- 6.4	+29.6		11.456	145	790	256	1331	57.7	-28.7	-71.9		
Means ...	...	...	0	7	199.15	- 6.55	...		12.597	342	1643	366	1723	55.8	-28.9	-58.7	
Group 754. A regular spot, followed by a close cluster of small spots. The latter disappear before May 13.									13.439	550	1966	467	1620	55.2	-28.5	-48.2		
May 7.451	23	94	44	178	108.9	+13.5	-73.6		14.528	521	2567	351	1701	55.6	-28.5	-33.3		
8.401	69	353	87	425	106.3	+13.9	-63.7		15.441	502	2380	306	1440	54.2	-28.9	-22.7		
9.113	34	334	30	291	108.0	+13.9	-52.6		16.525	729	2803	416	1595	52.8	-29.1	- 9.7		
10.486	94	481	60	307	107.3	+13.7	-35.1		17.569	456	2462	256	1385	51.5	-29.2	+ 2.8		
11.456	57	390	32	220	108.0	+13.7	-21.6		18.428	463	2477	268	1433	50.8	-29.4	+13.4		
12.597	48	318	25	166	109.0	+14.0	- 5.5		19.572	228	1449	143	916	49.4	-29.5	+27.1		
13.439	50	226	26	118	110.8	+13.3	+ 7.4		20.402	172	1064	121	755	49.0	-29.5	+37.8		
14.528	43	234	24	131	111.1	+13.4	+22.2		21.510	231	676	206	611	48.4	-29.4	+51.8		
15.441	32	152	20	96	111.6	+13.7	+34.7		22.118	43	323	47	355	48.1	-29.6	+59.5		
16.525	37	96	30	77	112.1	+13.7	+49.6		23.092	27	131	43	211	45.6	-29.8	+69.9		
17.569	0	45	0	54	112.6	+13.7	+63.9		24.100	15	69	60	281	44.9	-30.1	+82.5		
Means ...	...	...	34	188	109.61	+13.68	...		Means ...	...	...	230	1061	51.97	-29.15	...	
Group 755. Two very small spots.									Group 760. A number of spots in a straight line. The group gradually diminishes, and only the preceding spot is left on May 22.									
May 8.401	15	33	9	20	138.9	-14.1	-31.1		May 12.597	9	135	17	404	34.7	+ 9.8	-79.8		
9.113	22	63	12	35	138.7	-14.2	-21.9		13.439	116	459	168	682	34.0	+10.7	-69.4		
10.486	20	53	10	27	138.1	-14.8	- 4.3		14.528	105	609	91	556	33.4	+10.2	-55.5		
11.456	0	50	0	26	138.6	-14.3	+ 9.0											
12.597	0	28	0	16	140.3	-13.9	+25.8											
Means	6	25	138.92	-14.26	...											

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 760—continued.							
1882. _d					°	°	°
May 15.441	167	767	119	551	32.8	+10.5	-44.1
16.525	122	691	72	405	33.8	+10.6	-28.7
17.569	147	624	78	331	34.5	+10.8	-14.2
18.428	97	387	49	199	37.0	+10.8	-0.4
19.572	34	169	19	91	39.9	+10.7	+17.6
20.402	19	81	11	49	43.2	+10.4	+32.0
21.510	0	21	0	16	44.0	+10.2	+47.4
22.118	0	10	0	9	44.1	+11.8	+55.5
Means ...	...	...	57	299	37.40	+10.59	...
Group 761. A small faint spot.							
May 13.439	0	24	0	13	99.9	-20.4	-3.5
Means ...	...	...	0	13	99.9	-20.4	...
Group 762. Two large regular spots, with a number of small spots between and around them.							
May 14.528	74	395	119	658	16.3	-16.4	-72.6
15.441	175	805	189	867	15.1	-16.3	-61.8
16.525	295	1171	222	890	14.8	-16.1	-47.7
17.569	371	1777	227	1086	15.7	-15.5	-33.0
18.428	313	2194	172	1218	15.1	-15.7	-22.3
19.572	316	2109	162	1084	16.2	-15.1	-6.1
20.402	270	1958	139	1008	16.3	-15.2	+5.1
21.510	355	1785	195	975	16.8	-15.0	+20.2
22.118	160	1343	94	788	17.3	-15.1	+28.7
23.092	95	1005	67	692	17.6	-14.8	+41.9
24.100	67	757	60	670	17.1	-14.8	+54.7
25.098	35	412	47	549	16.7	-14.5	+67.6
26.480	9	52	41	252	14.9	-14.3	+84.1
Means ...	...	...	133	826	16.15	-15.29	...
Group 763. Two very small faint spots.							
May 16.525	13	31	7	17	61.5	+19.1	-1.0
17.569	0	18	0	10	63.4	+19.8	+14.7
18.428	0	46	0	27	60.9	+18.9	+23.5
Means ...	...	...	2	18	61.93	+19.27	...
Group 764. A small spot.							
May 20.402	0	11	0	6	0.5	+11.4	-10.7
Means ...	...	...	0	6	0.5	+11.4	...
Group 765. A regular spot, with a small companion.							
1882. _d					°	°	°
May 25.098	8	72	23	201	230.0	+13.7	-79.1
26.480	68	218	73	242	229.0	+13.7	-61.8
27.403	72	292	57	230	229.9	+13.8	-48.7
28.112	52	298	34	198	230.3	+13.7	-39.0
29.474	81	381	45	212	230.3	+13.8	-20.9
30.397	72	393	38	206	230.3	+13.8	-8.8
31.402	95	403	49	210	230.3	+14.1	+4.6
June 1.291	64	320	34	172	230.4	+14.2	+16.4
2.284	49	269	29	159	230.2	+14.4	+29.4
3.416	64	257	47	187	230.5	+15.0	+44.7
4.513	29	161	30	165	230.8	+15.4	+59.5
5.495	22	77	36	131	230.5	+14.9	+72.1
6.122	7	44	22	129	230.0	+15.3	+79.9
Means ...	...	...	40	188	230.19	+14.29	...
Group 766. A very small spot.							
May 29.474	0	10	0	10	192.3	-14.6	-58.9
30.397	0	15	0	11	193.3	-14.4	-45.8
31.402	0	15	0	9	193.9	-14.1	-31.8
June 1.291	6	10	3	5	193.1	-12.3	-20.9
Means ...	...	...	1	9	193.15	-13.85	...
Group 767. A regular spot.							
May 29.474	17	87	70	356	169.2	+21.4	-82.0
30.397	52	207	81	324	169.5	+21.5	-69.6
31.402	84	294	83	290	169.1	+21.5	-56.6
June 1.291	55	334	42	253	169.4	+21.5	-44.6
2.284	75	451	47	285	168.9	+21.5	-31.9
3.416	108	368	61	208	168.1	+21.4	-17.7
4.513	87	404	47	218	168.0	+21.4	-3.3
5.495	74	370	40	202	168.5	+20.8	+10.1
6.122	67	356	37	199	167.9	+21.1	+17.8
7.451	38	221	25	145	167.5	+21.0	+35.1
8.130	32	139	24	102	167.4	+20.4	+43.9
9.470	15	40	16	45	167.2	+20.8	+61.5
Means ...	...	...	48	219	168.39	+21.19	...
Group 768. Two very small faint spots.							
June 1.291	0	12	0	14	277.3	+25.7	+63.3
Means ...	...	...	0	14	277.3	+25.7	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 769. A very small faint spot.								Group 775. A very small faint spot.							
1882. _d June 3 ^h 41 ^m 6 ^s	1	11	0	6	189 ^o 6	-16 ^o 6	+ 3 ^o 8	1882. _d June 7 ^h 45 ^m 1 ^s	0	13	0	7	124 ^o 6	-13 ^o 0	- 7 ^o 8
Means ...	...	...	0	6	189 6	-16 ^o 6	...	Means ...	...	...	0	7	124 ^o 6	-13 ^o 0	...
Group 770. A small spot.								Group 776. A very small faint spot.							
June 3 ^h 41 ^m 6 ^s 4 ^h 51 ^m 3 ^s	4 8	16 15	4 5	15 10	129 ^o 6 131 ^o 0	+16 ^o 6 +16 ^o 6	-56 ^o 2 -40 ^o 3	June 7 ^h 45 ^m 1 ^s	3	9	2	6	93 ^o 9	-16 ^o 3	-38 ^o 5
Means ...	...	...	5	13	130 ^o 30	+16 ^o 60	...	Means ...	...	...	2	6	93 ^o 9	-16 ^o 3	...
Group 771. A very small spot.								Group 777. A large spot, with several small spots following it. The group undergoes great and frequent changes.							
June 3 ^h 41 ^m 6 ^s 4 ^h 51 ^m 3 ^s	0 3	20 8	0 2	26 7	119 ^o 4 119 ^o 6	+16 ^o 3 +16 ^o 1	-66 ^o 4 -51 ^o 7	June 9 ^h 47 ^m 0 ^s 10 ^h 20 ^m 0 ^s 11 ^h 42 ^m 9 ^s 12 ^h 41 ^m 1 ^s 13 ^h 29 ^m 4 ^s 14 ^h 51 ^m 2 ^s 15 ^h 53 ^m 8 ^s 16 ^h 39 ^m 9 ^s 17 ^h 48 ^m 9 ^s 18 19 20 ^h 43 ^m 3 ^s	63 59 99 162 97 240 263 293 277 No photograph. No photograph. 11	299 291 662 824 906 1478 1452 1587 1307 (135 (84 56	92 58 70 96 53 124 140 167 186 873 643 413 33	439 287 464 487 493 766 770 901 873 39 ^o 6 41 ^o 3 183	36 ^o 4 37 ^o 7 37 ^o 1 37 ^o 5 36 ^o 6 37 ^o 6 38 ^o 0 38 ^o 2 38 ^o 8 39 ^o 6 40 ^o 3 41 ^o 1	-12 ^o 8 -12 ^o 2 -12 ^o 4 -12 ^o 3 -12 ^o 3 -13 ^o 3 -12 ^o 9 -12 ^o 7 -12 ^o 4 -12 ^o 2 -12 ^o 1 -11 ^o 9	-69 ^o 3 -58 ^o 3 -42 ^o 7 -29 ^o 3 -18 ^o 5 - 1 ^o 4 +12 ^o 6 +24 ^o 2 +39 ^o 3 +53 ^o 0 +66 ^o 8 +80 ^o 5
Means ...	...	...	1	17	119 ^o 50	+16 ^o 20	...	Means ...	...	...	103	560	38 ^o 24	-12 ^o 46	...
Group 772. Two small spots.								Group 778. Two small spots.							
June 3 ^h 41 ^m 6 ^s	0	7	0	10	116 ^o 9	+14 ^o 9	-68 ^o 9	June 10 ^h 20 ^m 0 ^s 11 ^h 42 ^m 9 ^s 12 ^h 41 ^m 1 ^s	0 11 0	21 33 9	0 6 0	12 18 5	83 ^o 7 83 ^o 3 84 ^o 3	+26 ^o 0 +26 ^o 1 +25 ^o 3	-12 ^o 3 + 3 ^o 5 +17 ^o 5
Means ...	...	...	0	10	116 ^o 9	+14 ^o 9	...	Means ...	...	...	2	12	83 ^o 77	+25 ^o 80	...
Group 773. A small faint spot.								Group 779. Two or three small spots.							
June 4 ^h 51 ^m 3 ^s	0	3	0	2	125 ^o 1	+17 ^o 1	-46 ^o 2	June 11 ^h 42 ^m 9 ^s 12 ^h 41 ^m 1 ^s 13 ^h 29 ^m 4 ^s	10 49 2	41 115 40	12 39 2	47 92 27	16 ^o 2 17 ^o 2 17 ^o 3	-13 ^o 2 -13 ^o 4 -11 ^o 7	-63 ^o 6 -49 ^o 6 -37 ^o 8
Means ...	...	...	0	2	125 ^o 1	+17 ^o 1	...	Means ...	...	...	18	55	16 ^o 90	-12 ^o 77	...
Group 774. A small spot.								Group 779. Two or three small spots.							
June 7 ^h 45 ^m 1 ^s 8 ^h 13 ^m 0 ^s 9 ^h 47 ^m 0 ^s	0 0 1	21 15 7	0 0 1	11 9 6	152 ^o 5 155 ^o 2 157 ^o 1	- 8 ^o 6 - 7 ^o 7 - 7 ^o 2	+20 ^o 1 +31 ^o 7 +51 ^o 4	June 11 ^h 42 ^m 9 ^s 12 ^h 41 ^m 1 ^s 13 ^h 29 ^m 4 ^s	10 49 2	41 115 40	12 39 2	47 92 27	16 ^o 2 17 ^o 2 17 ^o 3	-13 ^o 2 -13 ^o 4 -11 ^o 7	-63 ^o 6 -49 ^o 6 -37 ^o 8
Means ...	...	...	0	9	154 ^o 93	- 7 ^o 83	...	Means ...	...	...	18	55	16 ^o 90	-12 ^o 77	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 780. A number of spots arranged in a straight line. The group undergoes great and frequent changes.								Group 784. A small spot.							
1882. _d June 14 ⁵ 12	19	53	21	62	335 ⁶	+21 ⁵	-63 ⁴	1882. _d June 24 ⁴ 08	0	11	0	14	201 ⁸	+16 ²	-66 ²
15 ⁵ 38	17	101	14	86	334 ²	+21 ⁷	-51 ²	Means ...	...	...	0	14	201 ⁸	+16 ²	...
16 ³ 99	37	168	25	114	335 ⁶	+21 ³	-38 ⁴	Group 785. A small spot when first seen on the East limb. The group increases in size, and becomes a long line of spots, of which the first spot is the largest.							
17 ⁴ 89	156	535	96	327	331 ²	+22 ⁴	-28 ³	June 25 ⁵ 29	0	8	0	8	192 ²	+10 ⁶	-61 ⁰
18	No photograph.	(79)	344	331 ⁰	+22 ⁶	-15 ⁵		26 ⁴ 17	11	27	8	20	193 ¹	+10 ⁶	-48 ³
19	No photograph.	(63)	361	330 ⁹	+22 ⁷	-2 ⁷		27 ⁵ 27	74	218	44	130	194 ⁵	+10 ⁹	-32 ²
20 ⁴ 33	85	693	46	378	330 ⁷	+22 ⁹	+10 ¹	28 ³ 73	54	488	29	262	195 ⁷	+10 ⁸	-19 ⁷
21 ² 91	24	529	14	306	331 ⁶	+21 ⁸	+22 ⁴	29 ² 45	50	266	26	136	196 ⁸	+10 ⁴	-7 ¹
22 ¹ 85	38	365	24	233	330 ⁹	+22 ⁴	+33 ⁵	30 ³ 43	52	376	27	192	197 ⁸	+10 ⁴	+8 ²
23 ⁴ 02	37	196	30	159	330 ⁶	+22 ⁷	+49 ³	July 1 ⁴ 43	123	529	67	289	196 ⁹	+10 ⁷	+22 ⁰
24 ⁴ 08	0	16	0	17	329 ⁴	+22 ⁶	+61 ⁴	2 ⁴ 63	102	406	63	255	198 ³	+10 ²	+37 ⁰
Means ...	...	...	37	217	331 ⁹ 7	+22 ² 4	...	3 ⁴ 57	58	281	46	222	199 ⁰	+9 ⁵	+50 ⁸
Group 781. A small regular spot, followed by some smaller spots.								4	No photograph.	(25)	123	199 ⁸	+9 ⁵	+64 ⁹	
June 20 ⁴ 33	42	214	25	125	292 ⁵	+15 ⁶	-28 ¹	5 ⁴ 74	2	9	4	24	200 ⁵	+9 ⁴	+79 ⁰
21 ² 91	13	91	7	49	292 ⁷	+15 ⁴	-16 ⁵	Means ...	...	...	31	151	196 ⁷ 8	+10 ² 7	...
22 ¹ 85	20	207	10	106	292 ⁷	+15 ²	-4 ⁷	Group 786. A very small faint spot.							
23 ⁴ 02	49	254	26	133	292 ³	+15 ⁴	+11 ⁰	June 25 ⁵ 29	3	6	1	3	250 ⁴	+24 ⁹	-2 ⁸
24 ⁴ 08	34	160	19	90	292 ⁸	+15 ¹	+24 ⁸	26 ⁴ 17	0	21	0	11	250 ⁴	+24 ¹	+11 ⁵
25 ⁵ 29	7	65	5	43	292 ⁷	+15 ⁵	+39 ⁵	27 ⁵ 27	12	34	7	20	251 ⁴	+23 ⁵	+24 ⁷
26 ⁴ 17	18	72	15	58	292 ⁶	+14 ⁹	+51 ²	28 ³ 73	0	17	0	12	252 ²	+23 ²	+36 ⁷
Means ...	...	...	15	86	292 ⁶ 1	+15 ³ 0	...	Means ...	...	...	2	12	251 ¹⁰	+23 ⁹ 3	...
Group 782. A small spot.								Group 787. Two very small close clusters of spots when first seen. The group develops into a line of spots, the middle spots of which soon disappear, whilst the first and last increase in size.							
June 23 ⁴ 02	0	13	0	11	229 ⁷	+14 ⁰	-51 ⁶	June 25 ⁵ 29	26	84	14	45	247 ⁵	-19 ³	-5 ⁷
24 ⁴ 08	0	13	0	8	229 ⁸	+14 ⁶	-38 ²	26 ⁴ 17	3	20	2	11	246 ¹	-18 ⁸	+4 ⁷
Means ...	...	...	0	10	229 ⁷ 5	+14 ³ 0	...	27 ⁵ 27	127	349	73	199	245 ⁸	-19 ⁴	+19 ¹
Group 783. A small regular spot.								28 ³ 73	79	745	50	466	245 ¹	-19 ³	+29 ⁷
June 23 ⁴ 02	13	56	19	84	210 ⁹	+14 ⁶	-70 ⁴	29 ² 45	81	664	58	482	245 ²	-19 ¹	+41 ³
24 ⁴ 08	24	95	23	91	210 ¹	+15 ¹	-57 ⁹	30 ³ 43	36	525	37	517	245 ⁶	-19 ²	+56 ⁰
25 ⁵ 29	16	101	11	69	211 ⁵	+14 ⁶	-41 ⁷	July 1 ⁴ 43	43	311	62	553	246 ⁴	-18 ⁹	+71 ⁵
26 ⁴ 17	22	104	13	61	211 ⁷	+14 ⁶	-29 ⁷	2 ⁴ 63	0	39	0	207	244 ⁵	-20 ¹	+83 ²
27 ⁵ 27	25	111	13	59	212 ⁰	+14 ⁹	-14 ⁷	Means ...	...	...	37	310	245 ⁷ 8	-19 ² 6	...
28 ³ 73	30	89	15	45	212 ²	+14 ⁷	-3 ³								
29 ² 45	11	93	6	48	212 ⁰	+14 ⁶	+8 ¹								
30 ³ 43	14	64	8	35	211 ⁸	+15 ⁰	+22 ²								
July 1 ⁴ 43	9	95	6	61	212 ⁷	+14 ¹	+37 ⁸								
2 ⁴ 63	0	28	0	23	213 ³	+13 ⁷	+52 ⁰								
Means ...	...	...	11	58	211 ⁸ 2	+14 ⁵ 9	...								

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 788. Two irregular spots, and two or three very small spots close to them.								Group 792. A very small faint spot. The group as it approaches the central meridian, and forms three or four spots.							
1882. _d June 26 ⁴ 17	0	35	0	67	167 ⁷	-15 ¹	-73 ⁷	1882. _d July 1 ⁴ 43	2	11	1	7	138 ⁹	-5 ⁵	-36 ⁰
27 ⁵ 27	38	184	39	195	167 ¹	-15 ⁵	-59 ⁶	2 ⁴ 63	0	16	0	8	139 ⁴	-5 ⁶	-21 ⁹
28 ³ 73	17	270	14	212	167 ⁸	-15 ¹	-47 ⁶	3 ⁴ 57	30	167	15	86	139 ⁸	-4 ⁶	-8 ⁴
29 ² 45	22	339	14	219	168 ⁶	-15 ¹	-35 ³	4	No photograph.		(25	92	139 ⁸	-4 ⁹	+4 ⁹
30 ³ 43	27	377	16	212	169 ⁷	-15 ⁰	-19 ⁹	5 ⁴ 74	63	185	34	98	139 ⁷	-5 ¹	+18 ²
July 1 ⁴ 43	105	419	56	222	169 ⁴	-15 ¹	-5 ⁵	6	No photograph.		(25	90	139 ⁶	-5 ²	+30 ⁹
2 ⁴ 63	80	306	43	163	169 ⁵	-15 ⁰	+8 ²	7 ⁴ 16	23	116	16	82	139 ⁴	-5 ³	+43 ⁶
3 ⁴ 57	102	312	58	177	169 ⁶	-14 ⁸	+21 ⁴	8 ¹ 06	12	58	10	49	139 ³	-5 ⁵	+52 ⁶
4	No photograph.		(54	199	170 ⁴	-14 ⁴	+35 ⁶	Means	...	...	16	64	139 ⁴⁹	-5 ²¹	...
5 ⁴ 74	60	268	50	220	171 ²	-14 ⁰	+49 ⁷								
Means	...	...	34	189	169 ¹⁰	-14 ⁹¹	...								
Group 789. A small spot.								Group 793. A small spot, not seen on July 2.							
June 29 ² 45	2	36	3	42	140 ²	-4 ⁷	-63 ⁷	July 1 ⁴ 43	11	54	8	40	127 ⁸	+18 ¹	-47 ¹
30 ³ 43	6	55	4	41	141 ⁹	-4 ⁶	-47 ⁷	2 ⁴ 63	0	0	0	0	...	...	...
July 1 ⁴ 43	19	63	11	37	144 ⁸	-4 ⁶	-30 ¹	3 ⁴ 57	0	14	0	8	126 ²	+17 ⁶	-22 ⁰
2 ⁴ 63	14	47	7	25	145 ⁶	-4 ⁶	-15 ⁷	Means	...	...	3	16	127 ⁰⁰	+17 ⁸⁵	...
3 ⁴ 57	8	23	4	12	145 ⁶	-4 ⁶	-2 ⁶								
4	No photograph.		(5	23	144 ⁹	-4 ²	+10 ⁰								
5 ⁴ 74	9	62	5	34	144 ²	-3 ⁸	+22 ⁷								
6	No photograph.		(8	27	144 ⁸	-4 ³	+36 ¹								
7 ⁴ 16	12	24	10	19	145 ³	-4 ⁸	+49 ⁵								
8 ¹ 06	6	12	6	12	146 ³	-4 ⁶	+59 ⁶								
Means	...	...	6	27	144 ³⁶	-4 ⁴⁸	...								
Group 790. A very small spot.								Group 794. A number of small spots. Before disappearing at the West limb they have almost all coalesced to form one large spot.							
June 29 ² 45	0	10	0	13	136 ¹	+15 ⁰	-67 ⁸	July 10 ⁴ 38	26	91	13	47	55 ⁰	+16 ²	-0 ⁸
30 ³ 43	0	17	0	15	137 ⁰	+15 ⁰	-52 ⁶	11 ² 94	39	219	20	113	52 ²	+16 ³	+7 ⁷
July 1 ⁴ 43	3	22	2	14	137 ⁰	+15 ⁰	-37 ⁹	12 ⁴ 72	110	499	62	281	53 ⁵	+15 ⁸	+24 ⁶
2 ⁴ 63	0	3	0	1	136 ¹	+14 ⁰	-25 ²	13 ² 49	55	447	34	278	53 ⁹	+15 ⁶	+35 ³
3 ⁴ 57	0	16	0	8	136 ⁵	+15 ²	-11 ⁷	14 ⁴ 76	70	327	57	265	53 ⁸	+15 ⁷	+51 ⁵
Means	...	...	0	10	136 ⁵⁴	+14 ⁸⁴	...	15 ⁵ 57	24	400	31	503	55 ⁰	+15 ⁹	+66 ⁹
								16 ⁵ 18	12	41	34	117	56 ¹	+16 ³	+80 ⁷
								Means	...	...	36	229	54 ²¹	+15 ⁹⁷	...
Group 791. A small spot.								Group 795. Two very small spots, not seen on July 13 and 14.							
June 30 ³ 43	0	17	0	35	116 ⁸	-22 ⁷	-72 ⁸	July 12 ⁴ 72	0	16	0	14	335 ⁶	+11 ³	-53 ³
July 1 ⁴ 43	11	42	12	46	116 ³	-23 ²	-58 ⁶	13 ² 49	0	0	0	0	...	...	...
2 ⁴ 63	11	50	9	40	116 ⁴	-23 ²	-44 ⁹	14 ⁴ 76	0	0	0	0	...	...	...
3 ⁴ 57	3	13	2	9	115 ³	-23 ⁰	-32 ⁹	15 ⁵ 57	0	43	0	24	334 ⁹	+11 ¹	-13 ²
Means	...	...	6	33	116 ²⁰	-23 ⁰³	...	16 ⁵ 18	4	49	2	25	334 ⁵	+11 ⁴	-0 ⁹
								17 ⁴ 40	0	20	0	11	336 ²	+11 ⁵	+13 ⁰
								Means	...	...	0	12	335 ³⁰	+11 ³³	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 796. Two close pairs of very small spots.								Group 800. Three small spots.							
1882. _d July 14 ⁴⁷⁶	42	87	22	44	7 ⁸	+ 8 ⁷	+ 5 ⁵	1882. _d July 17 ⁴⁴⁰	0	17	0	20	261 ³	- 11 ⁸	- 61 ⁹
15 ⁵⁵⁷	22	119	12	63	8 ⁶	+ 9 ⁰	+ 20 ⁵	18 ⁴⁵²	24	59	19	49	260 ²	- 11 ⁶	- 49 ⁵
16 ⁵¹⁸	3	14	2	8	6 ²	+ 8 ⁴	+ 30 ⁸	19 ⁵⁰⁶	9	45	6	29	259 ⁷	- 11 ⁸	- 36 ¹
17 ⁴⁴⁰	0	10	0	7	7 ⁴	+ 8 ¹	+ 44 ²	Means ...	...	...	8	33	260 ⁴⁰	- 11 ⁷³	...
Means ...	...	...	9	31	7 ⁵⁰	+ 8 ⁵⁵	...	Group 801. A very small faint spot.							
Group 797. A large regular spot, with several small spots following it. These smaller spots disappear before July 22.								July 18 ⁴⁵²	0	7	0	11	17 ⁸	- 20 ³	+ 68 ¹
July 14 ⁴⁷⁶	56	348	90	568	289 ⁵	+ 14 ¹	- 72 ⁸	Means ...	...	...	0	11	17 ⁸	- 20 ³	...
15 ⁵⁵⁷	148	652	138	608	290 ⁴	+ 14 ⁰	- 57 ⁷	Group 802. Two small spots. Other small spots appear and form a V-shaped group, the preceding spot, which is also the largest, forming the angle of the V.							
16 ⁵¹⁸	94	908	66	645	290 ⁶	+ 14 ⁴	- 44 ⁸	July 18 ⁴⁵²	0	28	0	29	252 ⁶	- 18 ⁹	- 57 ¹
17 ⁴⁴⁰	135	855	81	509	291 ⁴	+ 14 ⁸	- 31 ⁸	19 ⁵⁰⁶	8	52	6	39	253 ⁹	- 19 ⁶	- 41 ⁹
18 ⁴⁵²	202	986	109	527	291 ⁷	+ 14 ⁹	- 18 ⁰	20 ⁵³²	28	128	17	80	254 ⁸	- 19 ⁴	- 27 ⁴
19 ⁵⁰⁶	225	885	114	452	292 ⁷	+ 15 ²	- 3 ¹	21 ⁵³³	44	264	26	151	254 ⁶	- 19 ⁸	- 14 ⁴
20 ⁵³²	157	785	81	407	292 ⁸	+ 14 ⁸	+ 10 ⁶	22 ¹⁰⁶	45	268	25	150	254 ⁷	- 20 ²	- 6 ⁷
21 ⁵³³	132	716	74	399	293 ⁵	+ 14 ⁷	+ 24 ⁵	23 ⁵⁷⁹	40	228	22	132	256 ⁷	- 20 ²	+ 14 ⁸
22 ¹⁰⁶	87	570	52	343	294 ¹	+ 14 ⁴	+ 32 ⁷	24 ³⁹⁷	41	211	26	133	257 ⁸	- 20 ²	+ 26 ⁷
23 ⁵⁷⁹	115	539	94	443	294 ⁵	+ 13 ⁹	+ 52 ⁶	25 ¹⁸⁹	16	102	11	74	259 ¹	- 20 ¹	+ 38 ⁴
24 ³⁹⁷	99	420	110	466	294 ⁷	+ 13 ⁹	+ 63 ⁶	26 ⁴⁰⁶	26	65	26	64	259 ⁸	- 19 ³	+ 55 ³
25 ¹⁸⁹	35	178	60	309	294 ⁶	+ 14 ¹	+ 73 ⁹	27 ⁴⁰⁶	2	16	3	26	260 ¹	- 19 ¹	+ 68 ⁸
Means ...	...	...	89	473	292 ⁵⁴	+ 14 ⁴³	...	Means ...	...	...	16	88	256 ⁴¹	- 19 ⁶⁸	...
Group 798. A close cluster of very small faint spots.								Group 803. A small spot.							
July 15 ⁵⁵⁷	4	34	6	50	277 ⁴	+ 18 ⁶	- 70 ⁷	July 18 ⁴⁵²	0	16	0	41	232 ⁷	- 17 ⁵	- 77 ⁰
16 ⁵¹⁸	2	11	2	10	279 ⁴	+ 19 ⁴	- 56 ⁰	19 ⁵⁰⁶	0	25	0	33	231 ²	- 18 ³	- 64 ⁶
17 ⁴⁴⁰	0	12	0	8	280 ²	+ 19 ³	- 43 ⁰	20 ⁵³²	16	37	15	33	230 ⁸	- 17 ⁸	- 51 ⁴
18 ⁴⁵²	0	60	0	37	277 ⁵	+ 19 ⁶	- 32 ²	21 ⁵³³	12	30	8	21	230 ⁴	- 18 ¹	- 38 ⁶
19 ⁵⁰⁶	14	78	8	42	276 ²	+ 18 ⁷	- 19 ⁶	22 ¹⁰⁶	3	21	2	13	230 ⁵	- 18 ²	- 30 ⁹
20 ⁵³²	9	67	4	35	277 ⁸	+ 19 ³	- 4 ⁴	Means ...	...	...	5	28	231 ¹²	- 17 ⁹⁸	...
21 ⁵³³	3	42	2	22	278 ²	+ 18 ⁹	+ 9 ²	Group 804. Three or four small spots.							
Means ...	...	...	3	29	278 ¹⁰	+ 19 ¹¹	...	July 20 ⁵³²	0	15	0	18	216 ⁰	+ 18 ⁴	- 66 ²
Group 799. A small spot.								21 ⁵³³	9	48	7	41	215 ⁵	+ 19 ³	- 53 ⁵
July 17 ⁴⁴⁰	0	9	0	6	282 ⁹	- 11 ¹	- 40 ³	22 ¹⁰⁶	0	26	0	19	215 ⁶	+ 19 ⁵	- 45 ⁸
Means ...	...	...	0	6	282 ⁹	- 11 ¹	...	Means ...	...	...	2	26	215 ⁷⁰	+ 19 ⁰⁷	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 805. A close cluster of small spots.							
1882. _d July 21 ^h 533 22 ^h 106	0 0	18 37	0 0	9 19	262.2 262.9	+ 7.6 + 7.7	- 6.8 + 1.5
Means ...	...	...	0	14	262.55	+ 7.65	...
Group 806. A small spot, with two or three small faint spots near it.							
July 21 ^h 533 22 ^h 106 23 ^h 579 24 ^h 397 25 ^h 189 26 ^h 406 27 ^h 406	0 2 27 7 10 6 9	32 32 137 59 33 46 77	0 3 18 4 5 3 4	59 34 96 36 18 24 39	194.2 199.3 197.4 197.4 199.9 196.1 194.8	+ 10.7 + 9.8 + 10.5 + 10.4 + 10.4 + 11.3 + 10.2	- 74.8 - 62.1 - 44.5 - 33.7 - 20.8 - 8.4 + 3.5
Means ...	...	...	5	44	197.01	+ 10.47	...
Group 807. Two or three small spots.							
July 23 ^h 579 24 ^h 397 25 ^h 189 26 ^h 406 27 ^h 406 28 ^h 170 29 ^h 427	4 23 0 49 31 0 0	68 83 30 191 145 51 89	3 14 0 25 16 0 0	44 47 16 97 75 28 61	204.2 203.2 205.7 203.4 203.7 203.5 208.0	+ 16.3 + 15.8 + 15.9 + 15.9 + 16.1 + 15.1 + 10.3	- 37.7 - 27.9 - 15.0 - 1.1 + 12.4 + 22.3 + 43.4
Means ...	...	...	8	53	204.53	+ 15.06	...
Group 808. A close cluster of small faint spots. The group develops into a large V-shaped group, the preceding spot, which is also the largest, forming the angle of the V.							
July 27 ^h 406 28 ^h 170 29 ^h 427 30 31 ^h 549	17 0 34 30 48	60 119 310 No photograph. 617	32 0 25 (26 26	113 140 233 285 337	118.3 118.1 118.9 120.4 121.9	- 11.3 - 11.0 - 10.4 - 11.0 - 11.5	- 73.0 - 63.1 - 45.7 - 30.2 - 14.7
Aug. 1 2 ^h 395 3 ^h 576 4 ^h 547 5 6 ^h 538	No photograph. 200 108 84 No photograph. 39	(68 908 720 673 271	(68 109 67 62 62	416 495 443 489 463 436	123.7 125.5 126.5 126.8 127.0 127.2	- 11.9 - 12.3 - 12.6 - 12.5 - 12.4 - 12.2	- 0.7 + 13.4 + 30.0 + 43.1 + 56.5 + 69.9
Means ...	...	...	49	350	123.12	- 11.74	...
Group 809. A small spot.							
1882. _d Aug. 3 ^h 576	3	15	2	10	57.9	+ 16.6	- 38.6
Means ...	...	...	2	10	57.9	+ 16.6	...
Group 810. A small spot.							
Aug. 8 ^h 604 9 ^h 625 10 ^h 378 11 ^h 616	0 6 2 0	15 15 25 35	0 6 2 0	29 16 21 22	313.2 314.1 314.2 314.7	+ 21.7 + 21.8 + 22.4 + 22.4	- 76.8 - 62.4 - 52.3 - 35.5
Means ...	...	...	2	22	314.05	+ 22.08	...
Group 811. Two spots, which rapidly increase in size on August 10 and 11.							
Aug. 9 ^h 625 10 ^h 378 11 ^h 616 12 ^h 399 13 14 ^h 516 15 ^h 537 16 ^h 570	31 73 205 174 No photograph. 66 62 0	120 500 981 849 (82 322 256 28	16 37 112 102 (82 61 86 0	62 258 533 496 399 302 364 69	10.1 11.1 9.6 9.1 9.6 10.0 8.8 4.6	+ 20.7 + 20.0 + 19.8 + 19.8 + 19.6 + 19.3 + 19.6 + 20.3	- 6.4 + 4.6 + 19.4 + 29.2 + 43.7 + 58.1 + 70.4 + 79.9
Means ...	...	...	62	310	9.11	+ 19.89	...
Group 812. A regular spot.							
Aug. 9 ^h 625 10 ^h 378 11 ^h 616 12 ^h 399 13 14 ^h 516 15 ^h 537 16 ^h 570 17 ^h 160 18 ^h 136 19 20 ^h 529	15 13 58 63 No photograph. 72 70 42 16 25 No photograph. 11	64 114 245 269 (40 326 292 243 194 165 (14 70	37 18 48 43 (40 38 35 22 9 15 (14 12	154 155 202 183 177 170 148 125 104 99 89 78	297.2 297.1 296.9 296.9 296.8 296.7 296.7 296.6 296.4 296.4 296.5 296.5	+ 15.1 + 15.6 + 15.1 + 14.2 + 14.9 + 15.6 + 15.6 + 15.4 + 15.4 + 15.4 + 15.5 + 15.5	- 79.3 - 69.4 - 53.3 - 43.0 - 29.1 - 15.2 - 1.7 + 11.9 + 19.6 + 32.4 + 48.3 + 64.1
Means ...	...	...	28	140	296.73	+ 15.28	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 813. A very small faint spot.							
1882. _d Aug. 10 ^h 37 ^m 8	0	7	0	8	305.3	-17.4	-61.2
Means ...	...	...	0	8	305.3	-17.4	...
Group 814. Three or four small spots in a straight line.							
Aug. 17 ^h 16 ^m 0	0	5	0	3	241.7	-20.9	-35.1
18 ^h 13 ^m 6	20	67	13	41	243.1	-20.6	-20.9
19	No photograph.		(9	27	245.0	-20.7	-3.3)
20 ^h 52 ^m 9	9	23	5	13	246.8	-20.8	+14.4
21 ^h 54 ^m 1	11	30	7	19	246.3	-20.8	+27.3
22 ^h 39 ^m 1	9	20	7	14	246.1	-21.0	+38.3
23 ^h 45 ^m 4	0	18	0	17	246.0	-20.8	+52.2
Means ...	...	...	6	19	245.00	-20.80	...
Group 815. A small spot.							
Aug. 18 ^h 13 ^m 6	0	3	0	4	203.2	-6.6	-60.8
19	No photograph.		(4	14	205.2	-7.1	-43.1)
20 ^h 52 ^m 9	14	43	8	24	207.1	-7.5	-25.3
21 ^h 54 ^m 1	8	33	4	18	208.3	-7.6	-10.7
22 ^h 39 ^m 1	10	31	5	16	209.2	-7.3	+1.4
23 ^h 45 ^m 4	12	16	6	9	210.3	-6.9	+16.5
24 ^h 57 ^m 9	3	13	2	8	210.7	-7.0	+31.8
Means ...	...	...	4	13	207.71	-7.14	...
Group 816. Two regular spots, with several small spots between them.							
Aug. 18 ^h 13 ^m 6	16	90	38	198	185.9	+13.0	-78.1
19	No photograph.		(104	535	188.1	+13.0	-60.1)
20 ^h 52 ^m 9	251	1300	169	872	190.3	+13.0	-42.1
21 ^h 54 ^m 1	304	1190	174	680	190.5	+13.5	-28.5
22 ^h 39 ^m 1	280	1536	148	809	190.7	+13.3	-17.1
23 ^h 45 ^m 4	286	1560	144	787	191.4	+13.6	-2.4
24 ^h 57 ^m 9	256	1522	131	781	190.3	+13.2	+11.4
25 ^h 60 ^m 0	283	1232	158	683	190.2	+13.2	+24.9
26 ^h 42 ^m 6	218	840	136	525	191.2	+13.2	+36.7
27 ^h 39 ^m 3	83	619	63	464	190.4	+13.0	+48.7
28	No photograph.		(101	480	190.4	+13.1	+61.9)
29 ^h 39 ^m 4	80	272	138	495	190.3	+13.1	+75.1
Means ...	...	...	125	609	189.98	+13.18	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 817. A close cluster of three or four spots. Two coalesce and form a large spot before August 21.							
1882. _d Aug. 20 ^h 52 ^m 9	49	203	31	128	258.0	-20.9	+25.6
21 ^h 54 ^m 1	109	562	80	411	257.4	-21.1	+38.4
22 ^h 39 ^m 1	189	884	175	814	258.2	-21.2	+50.4
23 ^h 45 ^m 4	109	490	165	719	259.1	-21.2	+65.3
24 ^h 57 ^m 9	12	90	27	329	257.4	-22.3	+78.5
Means ...	...	...	96	480	258.02	-21.34	...
Group 818. A small spot.							
Aug. 20 ^h 52 ^m 9	0	7	0	4	244.9	-17.4	+12.5
Means ...	...	...	0	4	244.9	-17.4	...
Group 819. A very small spot.							
Aug. 20 ^h 52 ^m 9	4	10	2	6	204.1	+10.9	-28.3
21 ^h 54 ^m 1	0	9	0	5	205.1	+11.3	-13.9
Means ...	...	...	1	6	204.60	+11.10	...
Group 820. A very small spot.							
Aug. 20 ^h 52 ^m 9	0	7	0	4	200.3	+12.0	-32.1
21 ^h 54 ^m 1	0	20	0	10	199.1	+11.9	-19.9
Means ...	...	...	0	7	199.70	+11.95	...
Group 821. A regular spot.							
Aug. 22 ^h 39 ^m 1	0	34	0	131	126.8	-11.1	-81.0
23 ^h 45 ^m 4	27	105	35	139	128.0	-11.0	-65.8
24 ^h 57 ^m 9	35	157	29	132	128.2	-10.6	-50.7
25 ^h 60 ^m 0	43	164	28	109	128.1	-10.9	-37.2
26 ^h 42 ^m 6	53	212	31	124	129.0	-11.1	-25.5
27 ^h 39 ^m 3	37	220	20	119	128.5	-11.0	-13.2
28	No photograph.		(22	110	128.9	-11.5	+0.5)
29 ^h 39 ^m 4	44	183	24	100	129.3	-11.9	+14.1
30 ^h 55 ^m 0	32	162	19	99	129.1	-11.3	+29.1
31 ^h 37 ^m 4	11	50	7	34	128.9	-11.2	+39.8
Sept. 1 ^h 29 ^m 1	10	79	8	69	129.0	-11.4	+52.0
2 ^h 42 ^m 8	8	46	11	64	128.8	-11.3	+66.8
Means ...	...	...	20	103	128.55	-11.19	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 822. Several small spots irregularly arranged.								Group 827. A regular spot, with some smaller spots close to it.							
1882. _d					°	°	°	1882. _d					°	°	°
Aug. 23'454	25	64	21	55	139'6	+11'1	-54'2	Aug. 31'374	0	72	0	273	4'3	+20'6	-84'8
24'579	7	31	4	20	141'8	+11'4	-37'1								
25'600	16	61	9	34	139'1	+11'5	-26'2	Sept. 1'291	11	98	17	160	3'4	+20'6	-73'6
26'426	16	80	9	42	140'4	+11'4	-14'1	2'428	83	363	80	350	2'9	+20'1	-59'1
27'393	3	104	2	52	140'4	+11'1	-1'3	3'600	89	370	63	262	2'1	+20'1	-44'4
28	No photograph.		(8	49	140'9	+10'9	+12'4)	4'541	89	446	53	267	2'0	+20'1	-32'0
29'394	22	80	13	45	141'3	+10'7	+26'1	5'336	122	525	67	289	2'1	+20'3	-21'4
30'550	5	52	3	35	141'6	+12'0	+41'6	6'512	75	428	38	220	2'1	+20'7	-6'0
Means ...	...	...	9	42	140'64	+11'26	...	7'398	73	310	38	160	2'3	+20'9	+6'0
								8'400	48	259	26	140	2'3	+20'7	+19'2
								9'530	68	227	42	140	2'5	+20'7	+34'3
								10	No photograph.		(24	82	2'3	+20'8	+46'2)
								11'356	6	25	6	24	2'1	+20'8	+58'1
								Means ...	...	...	38	197	2'53	+20'53	...
								Group 828. Two regular spots, with a number of very small spots between them.							
								Sept. 1'291	30	66	21	46	117'6	-12'0	+40'6
								2'428	163	606	155	582	117'4	-12'2	+55'4
								3'600	53	250	95	449	118'0	-12'4	+71'5
								Means ...	...	...	90	359	117'67	-12'20	...
								Group 829. Several very small spots.							
								Sept. 2'428	2	17	1	9	64'8	+5'4	+2'8
								3'600	3	16	2	9	65'5	+6'2	+19'0
								Means ...	...	...	2	9	65'15	+5'80	...
								Group 830. Two small spots on September 2. These develop before September 4 into two large regular spots, with several very small spots near them.							
								Sept. 2'428	5	31	3	16	64'8	+20'8	+2'8
								3'600	98	370	53	202	66'4	+20'4	+19'9
								4'541	239	864	145	521	66'7	+20'8	+32'7
								5'336	443	1644	306	1142	66'5	+20'9	+43'0
								6'512	180	1053	176	1006	67'1	+21'3	+59'0
								7'398	178	618	249	841	65'8	+21'4	+69'5
								8'400	44	118	116	310	64'1	+21'4	+81'0
								Means ...	...	...	150	577	65'91	+21'00	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 831. Two small spots. The smaller of the two disappears before September 4.							
1882. _d Sept. 2 ^h 42 ^m 8	31	81	18	48	63 ^o 2	-23 ^o 0	+1 ^o 2
3 ^h 60 ^m 0	28	60	18	37	64 ^o 5	-22 ^o 7	+18 ^o 0
4 ^h 54 ^m 1	10	30	7	20	66 ^o 7	-21 ^o 5	+32 ^o 7
5 ^h 33 ^m 6	12	34	10	27	66 ^o 9	-21 ^o 7	+43 ^o 4
Means ...	...	...	13	33	65 ^o 33	-22 ^o 23	...
Group 832. Two very small faint spots.							
Sept. 2 ^h 42 ^m 8	0	5	0	2	39 ^o 9	-25 ^o 2	-22 ^o 1
Means ...	...	...	0	3	39 ^o 9	-25 ^o 2	...
Group 833. A number of spots, arranged in a straight line.							
Sept. 2 ^h 42 ^m 8	14	59	19	89	350 ^o 6	+7 ^o 2	-71 ^o 4
3 ^h 60 ^m 0	66	193	57	167	351 ^o 6	+7 ^o 0	-54 ^o 9
4 ^h 54 ^m 1	66	327	45	221	351 ^o 3	+6 ^o 8	-42 ^o 7
5 ^h 33 ^m 6	199	794	117	468	351 ^o 9	+6 ^o 9	-31 ^o 6
6 ^h 51 ^m 2	144	638	76	331	351 ^o 2	+7 ^o 1	-16 ^o 9
7 ^h 39 ^m 8	153	488	76	243	352 ^o 6	+7 ^o 4	-3 ^o 7
8 ^h 40 ^m 0	78	321	40	163	353 ^o 7	+7 ^o 7	+10 ^o 6
9 ^h 53 ^m 0	56	248	31	138	354 ^o 6	+8 ^o 0	+26 ^o 4
10	No photograph.	(24	156	355 ^o 5	+8 ^o 1	+39 ^o 4)	
11 ^h 35 ^m 6	20	215	16	174	356 ^o 3	+8 ^o 2	+52 ^o 3
12 ^h 54 ^m 4	25	189	34	249	356 ^o 9	+8 ^o 7	+68 ^o 5
Means ...	...	...	49	218	353 ^o 29	+7 ^o 55	...
Group 834. A small spot.							
Sept. 2 ^h 42 ^m 8	7	19	4	10	50 ^o 2	-12 ^o 7	-11 ^o 8
Means ...	...	...	4	10	50 ^o 2	-12 ^o 7	...
Group 835. A small spot.							
Sept. 9 ^h 53 ^m 0	9	31	17	56	253 ^o 0	+10 ^o 8	-75 ^o 2
10	No photograph.	(9	31	253 ^o 2	+11 ^o 0	-63 ^o 0)	
11 ^h 35 ^m 6	0	7	0	6	253 ^o 3	+11 ^o 2	-50 ^o 7
Means ...	...	...	9	31	253 ^o 17	+11 ^o 00	...
Group 836. A small spot.							
1882. _d Sept. 9 ^h 53 ^m 0	0	8	0	27	245 ^o 5	+18 ^o 9	-82 ^o 7
Means ...	...	...	0	27	245 ^o 5	+18 ^o 9	...
Group 837. A small spot on September 12. Three or four small spots, arranged in a straight line, on September 13.							
Sept. 12 ^h 54 ^m 4	17	50	11	31	323 ^o 8	+22 ^o 2	+35 ^o 4
13 ^h 54 ^m 0	39	144	29	107	322 ^o 0	+23 ^o 1	+46 ^o 7
14	No photograph.	(31	115	323 ^o 9	+22 ^o 6	+60 ^o 8)	
15 ^h 39 ^m 6	19	72	33	123	325 ^o 7	+22 ^o 0	+74 ^o 9
16 ^h 22 ^m 9	0	43	0	262	327 ^o 1	+21 ^o 0	+87 ^o 4
Means ...	...	...	21	128	324 ^o 50	+22 ^o 18	...
Group 838. A large regular spot, followed by a number of smaller spots arranged in a straight line.							
Sept. 13 ^h 54 ^m 0	45	339	79	815	196 ^o 2	+11 ^o 3	-79 ^o 1
14	No photograph.	(111	812	196 ^o 7	+11 ^o 3	-66 ^o 4)	
15 ^h 39 ^m 6	167	969	143	809	197 ^o 2	+11 ^o 3	-53 ^o 6
16 ^h 22 ^m 9	85	858	58	581	197 ^o 2	+12 ^o 2	-42 ^o 5
17	No photograph.	(112	642	197 ^o 6	+12 ^o 0	-27 ^o 8)	
18 ^h 40 ^m 6	318	1359	165	703	198 ^o 0	+11 ^o 7	-13 ^o 0
19 ^h 13 ^m 8	149	1041	75	521	198 ^o 0	+11 ^o 5	-3 ^o 4
20 ^h 41 ^m 1	205	924	110	482	199 ^o 4	+11 ^o 4	+14 ^o 9
21 ^h 28 ^m 5	107	839	60	470	199 ^o 8	+11 ^o 3	+26 ^o 8
22 ^h 58 ^m 5	133	610	91	424	200 ^o 4	+11 ^o 0	+44 ^o 5
23 ^h 20 ^m 0	67	463	54	384	201 ^o 3	+10 ^o 9	+53 ^o 5
24 ^h 21 ^m 4	40	231	51	290	201 ^o 7	+11 ^o 2	+67 ^o 3
25 ^h 56 ^m 7	4	24	14	80	198 ^o 9	+10 ^o 9	+82 ^o 4
Means ...	...	...	86	539	198 ^o 65	+11 ^o 38	...
Group 839. A small spot.							
Sept. 15 ^h 39 ^m 6	7	14	6	11	300 ^o 7	-13 ^o 5	+49 ^o 9
Means ...	...	...	6	11	300 ^o 7	-13 ^o 5	...
Group 840. Two small faint spots.							
Sept. 16 ^h 22 ^m 9	0	26	0	47	315 ^o 3	+18 ^o 8	+75 ^o 6
Means ...	...	...	0	47	315 ^o 3	+18 ^o 8	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 841. Two very small spots.								Group 845—continued.							
1882. _d Sept. 18 ^h 40 ^m 6 19 ^h 13 ^m 8	8 0	20 11	4 0	12 6	220°0 220°9	-20°9 -20°2	+9°0 +19°5	1882. _d Sept. 30 ^h 40 ^m 5	12	74	6	39	66°4	+21°6	+13°7
Oct. 1 ^h 49 ^m 1 2 ^h 56 ^m 0	24 3	74 16	14 2	43 11	66°8 66°3	+20°9 +21°0	+28°4 +42°1	Means ...	...	...	6	33	67°32	+21°27	...
Means ...	...	...	2	9	220°45	-20°55	...	Group 846. A very fine large regular spot.							
Group 842. A small regular spot.								Group 847. Two small spots.							
Sept. 18 ^h 40 ^m 6 19 ^h 13 ^m 8 20 ^h 41 ^m 1	16 13 8	89 83 35	9 8 5	52 49 23	215°2 214°5 213°1	-23°2 -23°3 -23°2	+4°2 +13°1 +28°6	Sept. 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0 28 ^h 41 ^m 0 29 ^h 16 ^m 8 30 ^h 40 ^m 5	120 210 260 315 275 347	696 944 1212 1279 1546 1758	177 208 198 233 165 198	1029 936 923 949 928 1002	50°9 50°9 51°2 50°9 50°6 50°5	-21°4 -20°8 -21°4 -21°7 -21°7 -21°7	-65°6 -54°0 -40°9 -28°1 -18°4 -2°2
Means ...	...	...	7	41	214°27	-23°23	...	Oct. 1 ^h 49 ^m 1 2 ^h 56 ^m 0 3 ^h 39 ^m 9 4 ^h 14 ^m 5 5 ^h 28 ^m 5 6 ^h 14 ^m 6	410 431 405 247 163 149	1704 1647 1359 1226 821 481	239 273 290 205 201 307	993 1046 972 1023 1015 990	50°5 50°0 49°7 49°1 49°0 48°9	-21°7 -21°7 -21°7 -21°7 -22°2 -22°1	+12°1 +25°8 +36°5 +45°8 +60°8 +72°0
Means ...	...	...	...	...	...	...	...	Means ...	...	...	225	984	50°18	-21°65	...
Group 843. Several small spots in a straight line.								Group 848. A fine group of very irregular shape. The preceding spot is regular, but the following spots undergo constant change.							
Sept. 21 ^h 28 ^m 5 22 ^h 58 ^m 5 23 ^h 20 ^m 0 24 ^h 21 ^m 4 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0	0 20 23 43 48 35 15	35 77 131 171 154 155 71	0 11 12 23 30 25 14	18 39 65 90 95 111 66	152°2 150°9 151°4 151°7 152°6 151°3 150°1	+11°5 +11°7 +11°8 +11°4 +11°1 +11°2 +11°5	-20°8 -5°0 +3°6 +17°3 +36°1 +46°4 +58°0	Sept. 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0 28 ^h 41 ^m 0 29 ^h 16 ^m 8 30 ^h 40 ^m 5	25 57 42 57 31 36	189 208 222 189 199 193	49 62 33 37 18 19	365 226 176 121 115 101	40°1 41°5 41°3 41°1 41°0 40°7	+18°4 +18°6 +18°7 +18°9 +19°2 +19°4	-76°4 -63°4 -50°8 -37°9 -28°0 -12°0
Means ...	...	...	16	69	151°46	+11°46	...	Oct. 1 ^h 49 ^m 1 2 ^h 56 ^m 0 3 ^h 39 ^m 9 4 ^h 14 ^m 5 5 ^h 28 ^m 5	29 31 28 7 5	180 119 70 28 20	15 17 16 5 4	93 64 40 18 16	40°8 40°4 40°2 40°0 39°9	+19°8 +20°3 +20°2 +20°0 +19°8	+2°4 +16°2 +27°0 +36°7 +51°7
Group 844. Three or four small spots, in the same straight line as 838.								Group 849. A small spot.							
Sept. 22 ^h 58 ^m 5 23 ^h 20 ^m 0	32 8	101 47	18 4	56 28	181°3 181°8	+12°0 +12°2	+25°4 +34°0	Sept. 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0 28 ^h 41 ^m 0 29 ^h 16 ^m 8	40 126 151 154	260 357 566 631	164 209 159 123	1057 591 595 507	37°2 37°1 36°7 35°7	-23°2 -22°5 -22°7 -22°6	-79°3 -67°8 -55°4 -43°3
Means ...	...	...	11	42	181°55	+12°10	...	Means ...	...	...	25	121	40°64	+19°39	...
Group 845. A small spot.								Group 848. A fine group of very irregular shape. The preceding spot is regular, but the following spots undergo constant change.							
Sept. 23 ^h 20 ^m 0 24 ^h 21 ^m 4 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0 28 ^h 41 ^m 0 29 ^h 16 ^m 8	0 0 0 0 4 45 25	25 15 32 27 19 112 92	0 0 0 0 2 24 13	60 19 24 17 11 59 47	68°1 67°9 67°6 67°2 67°2 68°1 67°6	+21°2 +20°8 +21°1 +21°1 +21°7 +21°7 +21°6	-79°7 -66°5 -48°9 -37°7 -24°9 -10°9 -1°4	Sept. 25 ^h 56 ^m 7 26 ^h 44 ^m 7 27 ^h 41 ^m 0 28 ^h 41 ^m 0	40 126 151 154	260 357 566 631	164 209 159 123	1057 591 595 507	37°2 37°1 36°7 35°7	-23°2 -22°5 -22°7 -22°6	-79°3 -67°8 -55°4 -43°3

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 848—continued.							
1882. ^d					°	°	°
Sept. 29.168	98	679	68	474	35.3	-22.7	-33.7
30.405	218	915	133	554	34.9	-22.7	-17.8
Oct. 1.491	242	1035	140	597	35.0	-22.7	-3.4
2.560	199	911	117	534	34.6	-22.9	+10.4
3.399	255	869	158	537	34.5	-22.7	+21.3
4.145	92	724	63	489	34.0	-22.9	+30.7
5.285	65	466	55	398	34.4	-23.1	+46.2
6.146	46	284	50	312	33.7	-22.8	+56.8
7.537	0	73	0	227	35.7	-23.5	+77.1
Means ...	...	...	111	529	35.29	-28.85	...
Group 849. An irregular spot, with several small spots close to it.							
Sept. 27.410	38	202	38	203	31.5	+6.7	-60.6
28.410	161	502	120	372	31.0	+6.9	-48.0
29.168	98	632	62	398	31.4	+7.0	-37.6
30.405	160	722	85	386	32.2	+7.0	-20.5
Oct. 1.491	217	936	109	472	32.7	+7.4	-5.7
2.560	176	823	89	418	32.7	+8.0	+8.5
3.399	166	723	88	384	32.6	+7.7	+19.4
4.145	83	555	48	318	32.2	+7.6	+28.9
5.285	42	320	29	222	32.2	+7.1	+44.0
6.146	11	116	10	103	32.8	+6.9	+55.9
7.537	14	63	27	118	33.7	+6.4	+75.1
Means ...	...	...	64	309	32.27	+7.15	...
Group 850. A small spot.							
Sept. 30.405	4	33	6	44	343.8	+6.6	-68.9
Oct. 1.491	4	20	3	16	347.9	+6.7	-50.5
2.560	16	45	10	28	348.3	+6.6	-35.9
3.399	21	71	11	39	349.3	+6.7	-23.9
4.145	14	30	7	15	349.7	+6.7	-13.6
5.285	10	23	5	12	350.1	+6.4	+1.9
6.146	14	45	7	23	350.7	+6.4	+13.8
7.537	8	24	4	14	351.2	+6.5	+32.6
Means ...	...	...	7	24	348.88	+6.58	...
Group 851. A very small faint spot.							
Oct. 3.399	3	28	3	23	323.0	+22.7	-50.2
4.145	3	12	2	8	323.2	+22.7	-40.1
5.285	0	10	0	6	322.1	+21.3	-26.1
6.146	0	9	0	5	322.5	+21.2	-14.4
Means ...	...	...	1	11	322.70	+21.98	...
Group 852. Two small spots.							
1882. ^d					°	°	°
Oct. 4.145	0	32	0	18	9.9	-17.4	+6.6
5.285	2	44	1	26	10.8	-18.0	+22.6
Means ...	...	...	1	22	10.35	-17.70	...
Group 853. A small spot. Other spots appear on October 5, forming a group of small spots, arranged in a straight line.							
Oct. 4.145	3	26	2	14	339.2	+7.4	-24.1
5.285	14	90	7	46	339.6	+7.2	-8.6
6.146	40	162	20	81	339.9	+7.5	+3.0
7.537	23	110	12	59	338.6	+7.9	+20.0
8.464	28	85	16	50	338.2	+8.3	+31.9
9.398	7	38	5	26	337.4	+8.1	+43.4
Means ...	...	...	10	46	338.82	+7.73	...
Group 854. A very small spot.							
Oct. 5.285	0	10	0	10	285.6	+8.4	-62.6
6.146	0	10	0	8	286.7	+5.7	-50.2
Means ...	...	...	0	9	286.15	+7.05	...
Group 855. One or two small faint spots.							
Oct. 10.171	0	18	0	11	318.4	+17.1	+34.6
11.157	0	10	0	7	320.3	+16.2	+49.4
12.152	3	17	3	18	319.2	+16.5	+61.6
Means ...	...	...	1	12	319.30	+16.60	...
Group 856. A regular spot.							
Oct. 10.171	17	98	45	261	203.6	+12.5	-80.2
11.157	22	137	27	169	204.1	+12.4	-66.8
12.152	31	243	26	204	203.6	+12.4	-54.0
13.424	96	320	60	201	203.6	+12.6	-37.3
14.285	45	336	26	189	202.6	+12.5	-27.0
15.217	60	335	31	173	203.4	+12.4	-13.9
16.191	54	358	27	180	203.0	+12.4	-1.3
17.323	60	326	31	169	202.9	+12.3	+13.4
18.336	52	284	29	160	202.6	+12.6	+26.5
19.309	37	258	24	168	202.8	+12.6	+39.5

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 856—continued.								Group 860.							
								A very small spot.							
1882. _d Oct. 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5	55 31 0	207 126 49	49 36 0	183 145 214	203 ^h 4 203 ^h 1 203 ^h 9	+12 ^h 3 +12 ^h 3 +12 ^h 7	+55 ^h 8 +64 ^h 7 +84 ^h 5	1882. _d Oct. 18 ^h 33 ^m 6 19 ^h 30 ^m 9	0 0	19 6	0 0	13 6	212 ^h 0 214 ^h 7	-21 ^h 5 -21 ^h 9	+35 ^h 9 +51 ^h 4
Means ...	...	...	32	186	203 ^h 28	+12 ^h 46	...	Means ...	...	...	0	10	213 ^h 35	-21 ^h 70	...
Group 857.								Group 861.							
A very fine extensive group, composed of a great number of small spots. The group undergoes great and frequent changes.								An irregular spot, with two or three small spots close to it.							
Oct. 13 ^h 42 ^m 4 14 ^h 28 ^m 5 15 ^h 21 ^m 7 16 ^h 19 ^m 1 17 ^h 32 ^m 3 18 ^h 33 ^m 6 19 ^h 30 ^m 9 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5 23 ^h 53 ^m 5 24 ^h 15 ^m 7	19 46 70 64 158 162 164 241 95 55 78 37	199 447 514 637 708 1270 1228 955 612 290 209 163	56 63 59 42 91 85 85 130 56 42 84 51	487 619 457 442 409 673 636 513 354 225 226 225	161 ^h 4 160 ^h 0 161 ^h 5 161 ^h 1 161 ^h 9 162 ^h 8 163 ^h 5 164 ^h 1 164 ^h 7 168 ^h 4 170 ^h 2 168 ^h 5	+17 ^h 5 +18 ^h 5 +18 ^h 3 +18 ^h 4 +18 ^h 2 +18 ^h 7 +19 ^h 0 +19 ^h 2 +19 ^h 1 +18 ^h 9 +18 ^h 5 +18 ^h 7	-79 ^h 5 -69 ^h 6 -55 ^h 8 -43 ^h 2 -27 ^h 6 -13 ^h 3 +0 ^h 2 +16 ^h 5 +26 ^h 3 +49 ^h 0 +62 ^h 5 +69 ^h 1	Oct. 18 ^h 33 ^m 6 19 ^h 30 ^m 9 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5	25 32 71 33 0	138 216 279 163 50	14 20 62 38 0	77 138 243 188 303	200 ^h 5 201 ^h 1 202 ^h 7 203 ^h 2 205 ^h 7	+15 ^h 3 +15 ^h 4 +15 ^h 0 +15 ^h 0 +14 ^h 6	+24 ^h 4 +37 ^h 8 +55 ^h 1 +64 ^h 8 +86 ^h 3
Means ...	...	...	70	439	164 ^h 01	+18 ^h 58	...	Means ...	...	...	27	190	202 ^h 64	+15 ^h 06	...
Group 858.								Group 862.							
Two small spots.								An irregular group, undergoing several changes. On October 21 it consists of two principal spots and a number of small spots, arranged in a straight line. The small spots disappear before October 22.							
Oct. 16 ^h 19 ^m 1 17 ^h 32 ^m 3 18 ^h 33 ^m 6	0 18 0	72 37 6	0 9 0	55 19 3	194 ^h 4 194 ^h 3 193 ^h 6	+12 ^h 1 +12 ^h 0 +12 ^h 1	-9 ^h 9 +4 ^h 8 +17 ^h 5	Oct. 19 ^h 30 ^m 9 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5 23 ^h 52 ^m 5 24 ^h 15 ^m 7	15 142 120 37 30 5	59 602 557 202 113 50	8 76 69 28 33 8	30 321 322 155 119 73	167 ^h 3 167 ^h 7 167 ^h 5 169 ^h 0 169 ^h 8 170 ^h 0	+10 ^h 9 +10 ^h 6 +10 ^h 2 +10 ^h 8 +10 ^h 9 +10 ^h 7	+4 ^h 0 +20 ^h 1 +29 ^h 1 +49 ^h 6 +62 ^h 1 +70 ^h 6
Means ...	...	...	3	26	194 ^h 10	+12 ^h 07	...	Means ...	...	...	37	170	168 ^h 55	+10 ^h 68	...
Group 859.								Group 863.							
Four or five small spots, arranged in a straight line.								Two very small spots.							
Oct. 16 ^h 19 ^m 1 17 ^h 32 ^m 3 18 ^h 33 ^m 6 19 ^h 30 ^m 9 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5	0 15 34 13 8 0 2	98 132 69 77 75 33 24	0 8 18 8 6 0 4	50 67 37 46 56 25 43	193 ^h 6 195 ^h 3 194 ^h 3 194 ^h 7 195 ^h 7 196 ^h 8 193 ^h 8	+15 ^h 2 +15 ^h 1 +15 ^h 0 +15 ^h 7 +15 ^h 6 +13 ^h 6 +9 ^h 7	-10 ^h 7 +5 ^h 8 +18 ^h 2 +31 ^h 4 +48 ^h 1 +58 ^h 4 +74 ^h 4	Oct. 19 ^h 30 ^m 9 20 ^h 49 ^m 1	4 0	11 13	2 0	7 8	147 ^h 1 145 ^h 9	-27 ^h 9 -27 ^h 7	-16 ^h 2 -1 ^h 7
Means ...	...	...	6	46	194 ^h 89	+14 ^h 27	...	Means ...	...	...	1	8	146 ^h 50	-27 ^h 80	...
Group 864.								Group 864.							
								A rectangular group of small spots on October 22. The group greatly increases in size on the following days, and on October 25 and 26, consists almost entirely of two large spots.							
Oct. 20 ^h 49 ^m 1 21 ^h 19 ^m 6 22 ^h 63 ^m 5 23 ^h 52 ^m 5 24 ^h 15 ^m 7 25 ^h 49 ^m 1	6 59 125 384 164 285	35 255 776 1631 1382 1485	3 32 65 209 95 193	20 137 402 886 792 994	121 ^h 6 122 ^h 5 124 ^h 1 124 ^h 9 124 ^h 6 121 ^h 5	+20 ^h 4 +19 ^h 7 +19 ^h 7 +20 ^h 1 +20 ^h 0 +18 ^h 9	-26 ^h 0 -15 ^h 9 +4 ^h 7 +17 ^h 2 +25 ^h 2 +39 ^h 8								

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 864—continued.								Group 868—continued.							
1882. _d Oct. 26.535	293	1196	269	1101	124.5	+19.6	+56.5	1882. _d Nov. 1.623	243	953	244	954	42.6	-22.8	+54.9
27.307	118	660	148	840	125.0	+19.6	+67.2	2.447	132	612	189	879	43.0	-22.4	+66.1
28.171	55	429	135	1028	125.3	+19.4	+78.9	3.402	0	255	0	741	41.9	-22.4	+77.7
Means ...	...	...	128	689	123.78	+19.71	...	Means ...	...	...	210	1030	43.15	-22.38	...
Group 865. A small spot. It is not seen on October 24.								Group 869. Two small spots.							
Oct. 22.635	0	9	0	5	134.4	-7.6	+15.0	Oct. 26.535	13	68	9	46	109.9	+14.6	+41.9
23.525	0	15	0	9	133.2	-6.7	+25.5	27.307	22	41	18	34	111.7	+14.0	+53.9
24.157	0	0	0	0	...	...	...	28.171	0	13	0	14	107.3	+14.1	+60.9
25.491	0	45	0	40	135.9	-8.9	+54.2	Means ...	...	...	9	31	109.63	+14.23	...
26.535	0	16	0	25	138.2	-8.7	+70.2								
27.307	1	31	2	29	131.9	-8.2	+74.1								
Means ...	...	...	0	18	134.72	-8.02	...								
Group 866. Two very small spots.								Group 870. A large regular spot, followed by two clusters of small spots. The small spots disappear before November 4.							
Oct. 22.635	0	16	0	8	133.7	+13.2	+14.3	Oct. 27.307	10	106	39	403	334.2	+16.3	-83.6
23.525	34	124	19	70	134.8	+12.8	+27.1	28.171	41	404	68	799	330.3	+15.8	-76.1
24.157	31	59	19	36	134.7	+12.5	+35.3	29.558	309	1154	284	1080	330.3	+15.7	-57.8
25.491	6	30	5	27	137.9	+9.8	+56.2	30.154	144	887	110	687	330.9	+15.9	-49.3
26.535	0	8	0	13	139.7	+10.0	+71.7	31.402	251	1079	151	650	331.1	+15.8	-32.7
Means ...	...	...	9	31	136.16	+11.66	...	Nov. 1.623	175	705	93	375	332.5	+15.7	-15.2
Group 867. A very small faint spot.								2.447	152	584	78	299	332.6	+16.0	-4.3
Oct. 22.635	0	7	0	6	72.5	+18.9	-46.9	3.402	86	470	45	243	333.9	+16.1	+9.7
Means ...	...	...	0	6	72.5	+18.9	...	4.413	71	415	39	230	333.8	+16.0	+22.9
								5.180	74	381	45	231	333.5	+15.9	+32.7
								6.412	63	295	49	228	333.4	+16.3	+48.9
								7.174	44	214	43	209	333.3	+16.3	+58.8
								8.563	10	95	21	200	333.6	+16.2	+77.4
								Means ...	...	...	82	433	332.57	+16.00	...
Group 868. A very fine large regular spot.								Group 871. Three very small spots. Two of these disappear before October 30. The group is not seen on October 31 and November 1.							
Oct. 22.635	151	511	389	1318	43.6	-22.4	-75.8	Oct. 29.558	12	59	6	33	8.0	-13.6	-20.1
23.525	237	896	319	1204	44.0	-22.5	-63.7	30.154	5	14	3	8	9.6	-14.1	-10.6
24.157	154	998	156	1012	44.3	-22.0	-55.1	31.402	0	0	0	0	...	...	...
25.491	297	1473	216	1071	43.4	-22.4	-38.3	Nov. 1.623	0	0	0	0	...	...	...
26.535	351	1625	218	1013	43.4	-22.4	-24.6	2.447	0	20	0	12	7.2	-13.0	+30.3
27.307	301	1732	173	999	43.7	-22.2	-14.1	Means ...	...	...	2	11	8.27	-13.57	...
28.171	277	1695	155	948	42.8	-22.2	-3.6								
29.558	428	1961	247	1131	42.8	-22.3	+14.7								
30.154	307	1658	186	1005	42.6	-22.2	+22.4								
31.402	325	1529	237	1112	42.9	-22.7	+39.1								

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.								
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.											
Group 872. Several small spots in a straight line.								Group 876. A very fine spot, and a number of spots arranged in a straight line above it. These spots undergo several changes, and by November 14 only two regular spots remain. The whole group, therefore, then consists of three regular spots, one of them very large, and another large.															
1882. _d Oct. 30 ^h 154 31 ^h 402	2 10	7 32	1 5	4 18	5 ^h 1 5 ^h 1	-20 ^m 1 -19 ^m 9	-15 ^s 1 + 1 ^s 3	1882. _d Nov. 4 ^h 413 5 ^h 180 6 ^h 412 7 ^h 174 8 ^h 563 9 ^h 398 10 ^h 575 11 ^h 549 12 ^h 181 13 ^h 157 14 ^h 163 15 ^h 155 16 ^h 147	66 120 147 164 330 327 412 404 194 159 79 75 14	493 623 1038 941 1337 1574 970 1665 1215 967 740 342 92	120 155 119 113 191 178 225 234 122 116 77 107 52	1163 814 862 653 771 858 531 969 760 707 710 485 331	235 ^m 3 236 ^m 4 236 ^m 1 236 ^m 8 236 ^m 8 237 ^m 8 238 ^m 4 238 ^m 1 237 ^m 9 237 ^m 9 237 ^m 8 236 ^m 3 236 ^m 9	-19 ^s 6 -19 ^s 5 -19 ^s 7 -19 ^s 6 -19 ^s 3 -19 ^s 0 -18 ^s 8 -19 ^s 1 -19 ^s 2 -18 ^s 8 -19 ^s 4 -19 ^s 6 -19 ^s 5	-75 ^s 6 -64 ^s 4 -48 ^s 4 -37 ^s 7 -19 ^s 4 - 7 ^s 4 + 8 ^s 7 +21 ^s 2 +29 ^s 3 +42 ^s 2 +55 ^s 4 +67 ^s 0 +80 ^s 6								
Means ...	...	...	19	109	4 ^h 75	-19 ^m 69	...	Means ...	...	...	139	740	237 ^m 12	-19 ^s 32	...				
Group 873. A very small spot.								Group 877. A regular spot, followed by several smaller spots. Of these latter, all but one disappear before November 9, and that one disappears before November 14.															
Oct. 31 ^h 402	24	74	15	48	333 ^m 0	-21 ^s 6	-30 ^s 8	Nov. 6 ^h 412 7 ^h 174 8 ^h 563 9 ^h 398 10 ^h 575 11 ^h 549 12 ^h 181 13 ^h 157 14 ^h 163 15 ^h 155 16 ^h 147 17 ^h 173*	0 0	20 7	0 0	11 4	334 ^m 6 334 ^m 7	-21 ^s 6 -21 ^s 4	-13 ^s 1 - 2 ^s 2	Nov. 6 ^h 412 7 ^h 174 8 ^h 563 9 ^h 398 10 ^h 575 11 ^h 549 12 ^h 181 13 ^h 157 14 ^h 163 15 ^h 155 16 ^h 147 17 ^h 173*	11 77 94 99 102 119 78 64 62 32 23 7	98 352 483 599 541 525 489 401 333 220 120 42	18 90 69 64 58 67 45 38 43 27 28 17	161 403 361 385 311 295 284 241 232 188 146 100	215 ^m 3 214 ^m 6 214 ^m 8 215 ^m 9 217 ^m 7 218 ^m 1 218 ^m 1 218 ^m 0 218 ^m 4 218 ^m 2 218 ^m 1 (218 ^m 3)	-23 ^s 0 -22 ^s 8 -22 ^s 2 -23 ^s 0 -23 ^s 7 -23 ^s 6 -23 ^s 5 -22 ^s 8 -24 ^s 0 -24 ^s 0 -24 ^s 1 -24 ^s 4	-69 ^s 2 -59 ^s 9 -41 ^s 4 -29 ^s 3 -12 ^s 0 + 1 ^s 2 + 9 ^s 5 +22 ^s 3 +36 ^s 0 +48 ^s 9 +61 ^s 8 +75 ^s 6
Means ...	...	...	5	21	334 ^m 10	-21 ^s 53	...	Means ...	...	...	47	259	217 ^m 13	-23 ^s 43	...				
Group 874. A number of spots in a straight line. The middle spots disappear, and the spots at the beginning and end of the line coalesce to form two spots before November 3.								Group 878. Several small spots.															
Nov. 1 ^h 623 2 ^h 447 3 ^h 402 4 ^h 413 5 ^h 180 6 ^h 412	58 80 96 71 61 0	331 457 539 355 238 44	31 45 64 59 66 0	177 259 352 291 261 125	2 ^h 0 1 ^h 7 2 ^h 3 2 ^h 3 3 ^h 4 5 ^h 0	+19 ^m 0 +19 ^m 2 +19 ^m 0 +19 ^m 4 +18 ^m 5 +18 ^m 8	+14 ^s 3 +24 ^s 8 +38 ^s 1 +51 ^s 4 +62 ^s 6 +80 ^s 5	Nov. 6 ^h 412 7 ^h 174 8 ^h 563 9 ^h 398 10 ^h 575 11 ^h 549	12 56 68 6	60 263 320 127	8 40 71 12	37 191 336 201	344 ^m 2 345 ^m 2 344 ^m 8 345 ^m 2	- 9 ^s 9 -10 ^s 0 - 9 ^s 6 -10 ^s 0	+33 ^s 3 +44 ^s 4 +60 ^s 3 +70 ^s 7	Nov. 6 ^h 412 7 ^h 174 8 ^h 563 9 ^h 398 10 ^h 575 11 ^h 549	3 9 25 21 20 24	13 30 57 49 48 60	7 11 18 13 11 12	26 37 43 31 26 31	208 ^m 6 208 ^m 3 208 ^m 7 208 ^m 6 208 ^m 7 207 ^m 8	+15 ^s 1 +15 ^s 1 +15 ^s 3 +15 ^s 1 +15 ^s 1 +15 ^s 0	-75 ^s 9 -66 ^s 2 -47 ^s 5 -36 ^s 6 -21 ^s 0 - 9 ^s 1
Means ...	...	...	33	191	344 ^m 85	- 9 ^s 88	...	Means ...	...	...	...	...	...	...	...	

* The photograph taken at Dehra Dûn, India, on November 17 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 16, 17 and 18, it would seem that the photograph on November 17 was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1^h 4 in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from these given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0^d 104, and the longitudes of the spots increased by 1^h 4.

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 878—continued.								Group 883. A small spot.							
1882. _d					°	°	°	1882. _d					°	°	°
Nov. 12.181	14	38	7	19	208.2	+14.0	-0.4	Nov. 11.549	10	39	6	22	228.9	-21.2	+12.0
13.157	6	53	3	27	206.8	+12.5	+11.1	12.181	0	10	0	6	228.3	-21.0	+19.7
14.163	4	13	2	8	208.7	+14.7	+26.3								
Means ...	...	...	9	28	208.27	+14.66	...	Means ...	...	...	3	14	228.60	-21.10	...
Group 879. Two very small faint spots.								Group 884. A small regular spot.							
Nov. 8.563	2	23	1	13	233.0	+20.4	-23.2	Nov. 11.549	17	62	25	89	148.0	-7.0	-68.9
								12.181	8	36	8	37	148.2	-6.5	-60.4
								13.157	15	79	11	59	148.7	-7.0	-47.0
								14.163	15	108	9	66	148.7	-7.2	-33.7
								15.155	19	105	10	57	148.9	-7.4	-20.4
								16.147	20	88	10	45	149.4	-7.5	-6.9
								17.173*	19	86	10	44	(149.5)	-7.8	+6.8
								18.485	34	103	19	57	149.4	-7.4	+24.0
								19.590	30	58	20	38	150.0	-7.4	+39.2
Means ...	...	...	1	13	233.0	+20.4	.	Means ...	...	...	14	55	148.98	-7.24	...
Group 880. A small spot.								Group 885. A very fine large spot. On November 18 a large portion becomes detached from the principal spot. Smaller portions become detached on the following days.							
Nov. 9.398	2	8	3	9	184.7	-10.3	-60.5	Nov. 12.181	0	82	0	500	122.6	+20.4	-86.0
10.575	0	11	0	8	186.8	-10.3	-42.9	13.157	238	807	422	1433	121.9	+19.5	-73.8
11.549	14	34	8	20	188.0	-9.9	-28.9	14.163	449	1690	468	1761	121.8	+19.1	-60.6
Means ...	...	...	4	12	186.50	-10.17	...	15.155	672	2621	515	2008	121.7	+19.2	-47.6
Group 881. A very small faint spot.								16.147	785	3549	497	2249	121.8	+19.2	-34.5
Nov. 11.549	0	7	0	4	245.3	+22.0	+28.4	17.173*	721	4194	404	2352	(121.5)	+19.1	-21.2
								18.485	1411	4667	733	2425	121.1	+18.8	-4.3
Means ...	...	...	0	4	245.3	+22.0	...	19.590	1105	4518	588	2401	120.4	+19.0	+9.6
Group 882. Two small spots. The group is not seen on November 10.								20.439	619	3475	345	1934	120.8	+19.1	+21.1
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	21.525	412	2702	262	1719	120.4	+19.2	+35.0
12.181	0	19	0	12	174.0	+19.3	-34.6	22.334	247	2559	183	1899	120.4	+18.7	+45.7
Means ...	...	...	3	16	173.55	+18.80	...	23.377	191	1705	194	1723	119.7	+19.7	+58.8
Group 883.								24.523	139	649	267	1226	120.1	+19.2	+74.3
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	25.431	0	73	0	320	117.6	+18.9	+83.7
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	348	1711	120.84	+19.22	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 886. A small faint spot.							
Group 884.								Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Means ...	...	...	0	2	193.8	+10.6	...
12.181	0	19	0	12	174.0	+19.3	-34.6	Group 885.							
Means ...	...	...	3	16	173.55	+18.80	...	A very fine large spot. On November 18 a large portion becomes detached from the principal spot. Smaller portions become detached on the following days.							
Group 885.								Nov. 12.181	0	82	0	500	122.6	+20.4	-86.0
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	13.157	238	807	422	1433	121.9	+19.5	-73.8
12.181	0	19	0	12	174.0	+19.3	-34.6	14.163	449	1690	468	1761	121.8	+19.1	-60.6
Means ...	...	...	3	16	173.55	+18.80	...	15.155	672	2621	515	2008	121.7	+19.2	-47.6
Group 886.								16.147	785	3549	497	2249	121.8	+19.2	-34.5
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	17.173*	721	4194	404	2352	(121.5)	+19.1	-21.2
12.181	0	19	0	12	174.0	+19.3	-34.6	18.485	1411	4667	733	2425	121.1	+18.8	-4.3
Means ...	...	...	3	16	173.55	+18.80	...	19.590	1105	4518	588	2401	120.4	+19.0	+9.6
Group 887.								20.439	619	3475	345	1934	120.8	+19.1	+21.1
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	21.525	412	2702	262	1719	120.4	+19.2	+35.0
12.181	0	19	0	12	174.0	+19.3	-34.6	22.334	247	2559	183	1899	120.4	+18.7	+45.7
Means ...	...	...	3	16	173.55	+18.80	...	23.377	191	1705	194	1723	119.7	+19.7	+58.8
Group 888.								24.523	139	649	267	1226	120.1	+19.2	+74.3
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	25.431	0	73	0	320	117.6	+18.9	+83.7
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	348	1711	120.84	+19.22	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 889.							
Group 889.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 890.							
Group 890.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 891.							
Group 891.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 892.							
Group 892.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 893.							
Group 893.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 894.							
Group 894.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 895.							
Group 895.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 896.							
Group 896.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 897.							
Group 897.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 898.							
Group 898.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 899.							
Group 899.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 900.							
Group 900.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 901.							
Group 901.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 902.							
Group 902.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 903.							
Group 903.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 904.							
Group 904.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.181	0	19	0	12	174.0	+19.3	-34.6	Means ...	...	...	0	2	193.8	+10.6	...
Means ...	...	...	3	16	173.55	+18.80	...	Group 905.							
Group 905.								A small faint spot.							
Nov. 11.549	7	29	5	20	173.1	+18.3	-43.8	Nov. 14.163	0	3	0	2	193.8	+10.6	+11.4
12.1															

* The photograph taken at Dehra Dûn, India, on November 17 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 16, 17 and 18, it would seem that the photograph on November 17 was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1°.4 in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from those given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0.104, and the longitudes of the spots increased by 1°.4.

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 887.							
Several small faint spots. The preceding spot becomes larger and darker by November 19, and the other spots disappear.							
1882. _d					°	°	°
Nov. 15 ¹⁵⁵	8	54	4	28	174.5	+18.8	+5.2
16 ¹⁴⁷	8	33	4	18	175.0	+19.0	+18.7
17 ^{173*}	5	56	3	35	(174.7)	+19.2	+32.0
18 ⁴⁸⁵	67	215	54	172	175.2	+18.9	+49.8
19 ⁵⁹⁰	0	97	0	124	177.1	+19.2	+66.3
20 ⁴³⁹	11	44	24	99	176.9	+19.4	+77.2
Means ...	...	...	15	79	175.57	+19.08	...
Group 888.							
Two small spots.							
Nov. 16 ¹⁴⁷	7	37	10	49	89.0	-6.0	-67.3
17 ^{173*}	13	124	11	104	(89.9)	-6.3	-52.8
18 ⁴⁸⁵	64	223	39	137	90.6	-6.2	-34.8
19 ⁵⁹⁰	61	133	33	72	91.1	-7.1	-19.7
20 ⁴³⁹	12	73	6	38	90.2	-7.0	-9.5
21 ⁵²⁵	0	73	0	38	90.6	-6.9	+5.2
22 ³³⁴	0	71	0	37	89.0	-8.4	+14.3
23 ³⁷⁷	0	9	0	5	91.7	-10.5	+30.8
24 ⁵²³	6	33	4	24	90.6	-10.6	+44.8
25 ⁴³¹	0	23	0	22	91.7	-10.8	+57.8
Means ...	...	...	10	53	90.44	-7.98	...
Group 889.							
A regular spot.							
Nov. 16 ¹⁴⁷	15	86	27	150	82.8	+11.2	-73.5
17 ^{173*}	18	137	18	136	(82.9)	+10.9	-59.8
18 ⁴⁸⁵	73	215	50	146	83.0	+10.8	-42.4
19 ⁵⁹⁰	55	215	31	123	82.7	+9.9	-28.1
20 ⁴³⁹	44	182	23	96	82.9	+10.3	-16.8
21 ⁵²⁵	27	108	14	55	82.9	+10.6	-2.5
22 ³³⁴	26	166	13	85	83.0	+10.6	+8.3
23 ³⁷⁷	17	167	9	92	83.0	+10.7	+22.1
24 ⁵²³	30	140	19	89	83.4	+10.9	+37.6
25 ⁴³¹	28	88	22	69	83.7	+10.9	+49.8
26 ⁴⁷⁸	14	42	16	48	83.7	+11.0	+63.7
27 ⁵⁴⁷	2	26	6	61	83.7	+11.3	+77.7
Means ...	...	...	21	96	83.14	+10.76	...
Group 890.							
Two regular spots close together. The preceding spot shows a tendency to break up, and several small spots form round the group on November 25 and following days. The smaller spots disappear before December 1, leaving only the second of the two original spots.							
1882. _d					°	°	°
Nov. 19 ⁵⁹⁰	73	350	135	649	38.8	-22.7	-72.0
20 ⁴³⁹	70	455	80	517	38.9	-22.5	-60.8
21 ⁵²⁵	90	377	73	308	37.9	-22.5	-47.5
22 ³³⁴	89	573	61	395	37.2	-22.2	-37.5
23 ³⁷⁷	71	579	42	346	37.1	-22.3	-23.8
24 ⁵²³	116	507	64	281	36.7	-22.8	-9.1
25 ⁴³¹	126	467	69	255	36.4	-22.7	+2.5
26 ⁴⁷⁸	69	362	39	206	36.1	-22.8	+16.1
27 ⁵⁴⁷	72	344	45	217	35.5	-23.3	+29.5
28 ⁵³⁹	68	224	50	166	34.9	-23.8	+42.0
29 ¹⁵⁹	36	167	30	141	33.8	-23.6	+49.1
30 ^{177†}	11	97	13	115	(33.5)	-23.0	+62.1
Dec. 1 ¹⁷⁵	8	39	17	82	32.8	-22.8	+74.6
Means ...	...	...	55	283	36.12	-22.85	...
Group 891.							
Three or four small spots. On November 24 two regular spots, of which the following one disappears before November 29.							
Nov. 22 ³³⁴	0	18	0	27	5.1	-19.2	-69.6
23 ³⁷⁷	7	70	7	70	4.0	-20.3	-56.9
24 ⁵²³	43	136	32	98	4.3	-20.6	-41.5
25 ⁴³¹	34	102	22	64	3.2	-20.7	-30.7
26 ⁴⁷⁸	9	105	5	58	6.4	-20.6	-13.6
27 ⁵⁴⁷	4	15	2	8	1.4	-21.8	-4.6
28 ⁵³⁹	17	56	9	31	3.8	-20.9	+10.9
29 ¹⁵⁹	8	46	5	26	5.3	-20.1	+20.6
30 ^{177†}	0	19	0	12	(3.5)	-22.3	+32.1
Means ...	...	...	9	44	4.11	-20.72	...
Group 892.							
Three or four small faint spots.							
Nov. 22 ³³⁴	6	56	10	99	1.0	+13.8	-73.7
23 ³⁷⁷	40	274	41	279	0.8	+13.7	-60.1
24 ⁵²³	80	326	56	232	1.2	+13.3	-44.6
25 ⁴³¹	48	275	29	165	1.6	+13.3	-32.3

* The photograph taken at Dehra Dûn, India, on November 17 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 16, 17 and 18, it would seem that the photograph on November 17 was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1°.4 in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from those given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0^d.104, and the longitudes of the spots increased by 1°.4.

† The photograph taken at Dehra Dûn, India, on November 30 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 29, 30 and December 1, it would seem that the photograph on November 30, was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1°.4 in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from those given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0^d.104, and the longitudes of the spots increased by 1°.4.

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 892—continued.							
1882. _d					°	°	°
Nov. 26.478	15	90	8	47	4.2	+12.8	-15.8
27.547	20	56	10	29	4.5	+12.8	-1.5
28.539	23	112	12	58	4.8	+12.6	+11.9
29.159	13	50	7	27	4.5	+12.9	+19.8
30.177*	0	15	0	9	(4.9)	+12.9	+33.5
Means ...	...	...	19	105	3.06	+13.12	...
Group 893. Three or four small spots. On November 26 only one spot remains.							
Nov. 23.377	11	46	6	25	64.5	+24.3	+3.6
24.523	0	9	0	5	66.9	+24.1	+21.1
25.431	26	55	17	35	66.4	+24.0	+32.5
26.478	7	15	5	12	67.2	+24.0	+47.2
27.547	6	10	6	11	67.7	+23.5	+61.7
Means ...	...	...	7	18	66.54	+23.98	...
Group 894. A fine group, composed of a great number of spots very irregularly arranged. The group undergoes constant changes, the preceding portion tending to increase, the following to diminish.							
Nov. 23.377	0	3	0	5	349.3	-9.7	-71.6
24.523	61	324	61	320	346.7	-8.6	-59.1
25.431	208	800	153	590	347.2	-8.0	-46.7
26.478	175	812	104	481	348.6	-8.1	-31.4
27.547	190	942	100	498	349.4	-8.2	-16.6
28.539	131	910	66	462	349.3	-8.1	-3.6
29.159	60	647	31	329	349.5	-8.0	+4.8
30.177*	36	668	19	359	(350.6)	-7.9	+19.2
Dec. 1.175	65	658	40	402	351.6	-8.1	+33.4
2.252	28	250	21	185	350.9	-8.3	+47.0
3.180	0	78	0	82	352.9	-8.7	+61.1
Means ...	...	...	54	338	349.64	-8.34	...
Group 895. A small regular spot.							
Nov. 24.523	0	35	0	68	330.9	+15.5	-74.9
25.431	8	64	9	72	330.8	+15.8	-63.1
26.478	8	27	6	21	330.6	+15.7	-49.4
27.547	4	17	3	11	331.0	+15.7	-35.0

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 895—continued.							
1882. _d					°	°	°
Nov. 28.539	18	33	10	18	330.7	+15.4	-22.2
29.159	13	17	7	9	330.6	+15.8	-14.1
30.177*	6	13	3	7	(331.1)	+15.7	-0.3
Dec. 1.175	9	13	5	7	331.1	+15.8	+12.9
2.252	0	7	0	4	330.2	+15.8	+26.3
Means ...	...	...	5	24	330.78	+15.69	...
Group 896. A small spot.							
Nov. 26.478	10	35	7	26	66.3	+10.9	+46.3
27.547	2	20	2	21	67.4	+11.1	+61.4
Means ...	...	...	5	24	66.78	+11.00	...
Group 897. Four or five small spots on November 26. The group rapidly increases in size on the following days, and on November 29 forms a long straight line of spots, of which the last is the largest. On December 3 only the last spot remains.							
Nov. 26.478	56	177	35	111	343.4	+9.8	-36.6
27.547	64	405	36	221	344.0	+10.1	-22.0
28.539	91	422	47	217	342.9	+10.6	-10.0
29.159	47	285	24	146	343.0	+10.7	-1.7
30.177*	19	248	10	129	(342.7)	+11.2	+11.3
Dec. 1.175	14	232	8	129	342.2	+11.3	+24.0
2.252	15	75	10	48	340.7	+12.0	+36.8
3.180	4	14	3	11	341.2	+12.1	+49.4
Means ...	...	...	22	127	342.51	+10.98	...
Group 898. Two considerable spots, with several small spots between them.							
Nov. 27.547	90	205	50	114	24.7	-17.5	+18.7
28.539	177	431	113	273	26.8	-17.2	+33.9
29.159	86	515	63	370	27.2	-17.2	+42.5
30.177*	40	350	39	337	(27.2)	-17.5	+55.8
Dec. 1.175	18	114	34	210	31.5	-16.5	+73.3
Means ...	...	...	60	261	27.48	-17.18	...

* The photograph taken at Dehra Dûn, India, on November 30 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 29, 30 and December 1, it would seem that the photograph on November 30, was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1.4° in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from those given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0.104, and the longitudes of the spots increased by 1.4°.

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 899. Several very small spots in a straight line. Only the first and last remain on November 29, and of these the first disappears before December 1.								Group 903—continued.							
1882. _d					°	°	°	Dec. 9 ⁵⁰²	19	283	17	257	263.8	−13.5	+55.4
Nov. 27 ⁵⁴⁷	0	39	0	49	300.9	−17.2	−65.1	10 ¹⁷⁵	35	228	44	284	265.4	−14.1	+65.7
28 ⁵³⁹	25	104	20	89	301.2	−17.3	−51.7	11 ¹⁶⁹	6	126	23	380	266.7	−14.1	+80.3
29 ¹⁵⁹	9	69	7	52	299.0	−17.3	−45.7	Means ...	...	...	14	150	262.24	−14.50	...
30 ¹⁷⁷ *	13	36	8	23	(300.3)	−17.4	−31.1	Group 904. A small regular spot.							
Dec. 1 ¹⁷⁵	4	22	2	12	296.7	−18.0	−21.5	Dec. 6 ¹⁶⁸	7	31	12	54	180.1	+18.7	−72.3
2 ²⁵²	0	15	0	8	296.1	−18.6	−7.8	7 ¹⁶⁰	8	39	8	40	181.9	+18.5	−57.4
Means ...	...	...	6	39	299.03	−17.63	...	8 ¹⁷⁹	9	41	7	31	180.4	+18.4	−45.5
Group 900. Six spots in two clusters on November 30. Three spots on December 1.								9 ⁵⁰²	9	19	5	11	180.8	+17.9	−27.6
Nov. 29 ¹⁵⁹	3	13	2	10	26.1	−26.0	+41.4	10 ¹⁷⁵	0	6	0	3	180.9	+18.1	−18.8
30 ¹⁷⁷ *	7	74	6	69	(24.7)	−24.7	+53.3	Means ...	...	...	6	28	180.82	+18.32	...
Dec. 1 ¹⁷⁵	15	83	19	111	23.9	−23.9	+65.7	Group 905. Two very small spots close together.							
Means ...	...	...	9	63	24.90	−24.87	...	Dec. 7 ¹⁶⁰	0	6	0	3	214.7	+7.5	−24.6
Group 901. Several very faint small spots.								Means ...	...	...	0	3	214.7	+7.5	...
Nov. 30 ¹⁷⁷ *	0	14	0	28	333.5	+11.5	+2.1	Group 906. Two spots. The following spot disappears before December 11.							
Means ...	...	...	0	28	333.5	+11.5	...	Dec. 8 ¹⁷⁹	15	61	8	31	218.2	−7.1	−7.7
Group 902. A very small spot.								9 ⁵⁰²	34	89	18	46	219.6	−7.2	+11.2
Dec. 2 ²⁵²	0	5	0	8	233.6	+20.0	−70.3	10 ¹⁷⁵	8	46	4	25	220.9	−7.1	+21.2
Means ...	...	...	0	8	233.6	+20.0	...	11 ¹⁶⁹	5	22	3	13	221.5	−6.7	+35.1
Group 903. Several small spots. The group undergoes constant changes.								12 ²⁶²	0	6	0	5	221.9	−7.0	+49.9
Dec. 5 ¹⁶⁰	0	44	0	23	256.1	−14.7	−9.6	Means ...	...	...	7	24	220.42	−7.02	...
6 ¹⁶⁸	0	58	0	30	258.7	−15.3	+6.3	Group 907. A regular spot, followed by several smaller spots. These latter have all disappeared before December 14.							
7 ¹⁶⁰	23	73	12	40	262.3	−14.9	+23.0	Dec. 8 ¹⁷⁹	4	16	4	17	163.5	+10.2	−62.4
8 ¹⁷⁹	8	53	5	34	262.7	−14.9	+36.8	9 ⁵⁰²	59	167	41	117	165.3	+9.9	−43.1
								10 ¹⁷⁵	42	253	26	156	165.6	+10.6	−34.1
								11 ¹⁶⁹	29	284	16	155	165.7	+11.1	−20.7
								12 ²⁶²	40	280	21	144	165.4	+11.0	−6.6
								13 ⁴³³	15	142	8	74	165.0	+10.7	+8.4

* The photograph taken at Dehra Dûn, India, on November 30 appears to be wrongly timed. From a comparison of all the groups of spots common to the photographs of November 29, 30, and December 1, it would seem that the photograph on November 30 was taken two hours and a half earlier than the time marked upon it, corresponding to a difference of 1°.4 in longitude. The time of the photograph and the corresponding longitudes of the groups of spots have, therefore, been altered from those given in the *Greenwich Observations* for 1882, by these amounts respectively; the decimal of the day being diminished by 0.104, and the longitudes of the spots increased by 1°.4.

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 907—continued.								Group 912. Two very small faint spots.							
1882. _d Dec. 14 ²⁸⁹ 15 ²⁷³ 16 ¹⁵⁸ Means ...	0 8 4 ...	44 39 13 ...	0 5 3 14	24 24 10 80	166.6 166.0 166.9 165.56	+11.1 +11.6 +11.2 +10.82	+21.2 +33.6 +46.1 ...	1882. _d Dec. 15 ²⁷³ 16 ¹⁵⁸ 17 ¹⁹¹ Means ...	0 0 0 ...	4 14 16 ...	0 0 0 0	3 13 32 16	180.2 178.8 182.3 180.43	+2.7 +2.1 +2.0 +2.27	+47.8 +58.0 +75.2 ...
Group 908. A large spot, with two companions slightly smaller. Other spots appear both preceding and following the large spots on December 13 and following days, and the group forms a very long straight line of spots. The spots in the middle of the line disappear before December 16. The preceding cluster disappears before December 20.								Group 913. A group of four or five spots irregularly disposed. The group diminishes in size after December 18, and only two small spots remain on December 21.							
Dec. 10 ¹⁷⁵ 11 ¹⁶⁹ 12 ²⁶² 13 ⁴³³ 14 ²⁸⁹ 15 ²⁷³ 16 ¹⁵⁸ 17 ¹⁹¹ 18 ²⁰⁸ 19 ⁴⁵² 20 ⁴²² Means ...	13 38 74 125 31 30 59 33 33 29 0	127 315 481 535 454 611 635 363 335 137 40	42 52 66 86 19 17 31 18 20 22 0	417 437 428 366 273 333 335 200 202 105 35	119.1 119.1 118.7 118.0 118.1 119.8 121.8 123.2 123.1 124.1 117.9	+18.8 +19.0 +19.1 +19.4 +19.8 +17.7 +16.7 +15.4 +15.3 +14.9 +18.0	-80.6 -67.3 -53.3 -38.6 -27.3 -12.6 +1.0 +16.1 +29.3 +46.8 +53.3	Dec. 16 ¹⁵⁸ 17 ¹⁹¹ 18 ²⁰⁸ 19 ⁴⁵² 20 ⁴²² 21 ⁵⁰⁶ 22 ⁵⁰⁸ Means ...	5 29 43 77 40 15 7	27 244 368 276 205 45 72	4 18 25 40 20 8 5	21 155 205 141 105 25 45	72.2 70.2 70.2 69.9 71.7 73.8 72.9	+10.1 +10.4 +10.3 +9.8 +9.9 +8.9 +9.8	-48.6 -36.9 -23.6 -7.4 +7.1 +23.5 +35.8
Group 909. Three small spots.								Group 914. A small regular spot.							
Dec. 12 ²⁶² 13 ⁴³³ Means ...	4 0 ...	44 8 ...	4 0 2	38 10 24	221.8 219.8 220.80	+24.8 +25.1 +24.95	+49.8 +63.2 ...	Dec. 19 ⁴⁵² 20 ⁴²² 21 ⁵⁰⁶ 22 ⁵⁰⁸ 23 ⁵³⁰ 24 ¹⁸³ 25 ¹⁵⁸ 26 ³¹⁴ 27 ¹⁶² 28 ¹⁷⁸ 29 ³⁰² 30 ²³⁸ 31 ¹⁹⁸ Means ...	0 19 30 48 31 23 23 3 8 0 9 47 4	61 148 136 132 95 67 84 64 27 9 26 116 8	0 20 23 29 17 12 12 2 5 0 8 61 8	113 157 103 81 52 35 43 34 16 6 23 152 16	2.8 3.2 2.4 3.5 2.6 2.6 3.0 3.5 3.7 1.6 3.1 3.0 359.4	-15.3 -15.5 -15.1 -15.2 -15.4 -15.3 -15.4 -15.7 -15.9 -12.0 -12.0 -11.3 -11.6	-74.5 -61.4 -47.9 -33.6 -21.0 -12.4 +0.8 +16.6 +27.9 +39.2 +55.5 +67.7 +76.8
Group 910. Several small spots. The group undergoes frequent changes.								Group 915. A very small spot.							
Dec. 12 ²⁶² 13 ⁴³³ 14 ²⁸⁹ 15 ²⁷³ 16 ¹⁵⁸ Means ...	0 5 9 13 11	6 45 92 81 33	0 3 5 9 10	3 24 54 56 30	173.5 174.8 174.7 174.3 176.6	+8.7 +9.5 +9.9 +10.5 +10.1	+1.5 +18.2 +29.3 +41.9 +55.8	Dec. 21 ⁵⁰⁶ Means ...	8 ...	18 ...	5 5	10 10	19.1 19.1	+6.9 +6.9	-31.2 ...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 916. Two small spots.							
1882. _a Dec. 21 ⁵⁰ 6 22 ⁵⁰ 8 23 ⁵³ 0 24 ¹⁸ 3	0 15 7 0	31 40 27 35	0 9 4 0	21 22 14 18	8 ³ 11 ⁶ 12 ⁶ 13 ¹	-14 ⁷ -14 ³ -14 ² -13 ⁸	-42 ⁰ -25 ⁵ -11 ⁰ -1 ⁹
Means ...	...	...	3	19	11 ⁴	-14 ²⁵	...
Group 917. Two small faint spots.							
Dec. 22 ⁵⁰ 8	7	61	5	40	359 ⁹	+12 ¹	-37 ²
Means ...	...	...	5	40	359 ⁹	+12 ¹	...
Group 918. A close cluster of very faint small spots.							
Dec. 24 ¹⁸ 3 25 ¹⁵ 8	0 13	140 58	0 7	77 30	352 ¹ 352 ²	+6 ⁶ +7 ⁶	-22 ⁹ -10 ⁰
Means ...	...	...	4	54	352 ¹⁵	+7 ¹⁰	...
Group 919. Three small faint spots.							
Dec. 26 ³¹ 4	0	30	0	16	359 ⁸	-11 ⁴	+12 ⁹
Means ...	...	...	0	16	359 ⁸	-11 ⁴	...
Group 920. A regular spot.							
Dec. 26 ³¹ 4 27 ¹⁶ 2 28 ¹⁷ 8 29 ³⁰ 2 30 ²³ 8 31 ¹⁹ 8	38 33 48 61 88 93	150 183 342 371 473 504	89 42 40 39 49 48	349 230 285 237 265 262	268 ⁹ 269 ⁴ 270 ⁰ 270 ⁰ 270 ³ 270 ²	-13 ⁸ -13 ⁸ -14 ² -14 ² -14 ³ -14 ¹	-78 ⁰ -66 ⁴ -52 ⁴ -37 ⁶ -25 ⁰ -12 ⁴
1883. Jan. 1 ¹⁵ 6 2 ⁴² 9 3 ¹⁵ 5 4 ¹⁹ 0 5 ¹⁷ 0 6 ⁴⁶ 3 7 ¹⁸ 1	93 137 69 68 57 55 15	559 510 482 372 311 184 106	48 73 39 45 47 78 37	286 271 275 246 259 262 270	270 ² 270 ⁰ 270 ¹ 270 ² 269 ⁸ 269 ⁹ 269 ⁹	-14 ³ -14 ⁷ -14 ⁴ -14 ⁵ -14 ¹ -14 ³ -14 ⁶	+0 ² +16 ⁸ +26 ⁴ +40 ² +52 ⁷ +69 ⁸ +79 ²
Means ...	...	...	52	269	269 ⁹²	-14 ²⁵	...
Group 921. A small regular spot.							
1882. _a Dec. 27 ¹⁶ 2 28 ¹⁷ 8 29 ³⁰ 2 30 ²³ 8 31 ¹⁹ 8	7 8 12 7 0	16 19 16 11 2	10 7 8 4 0	24 18 10 6 1	266 ³ 267 ¹ 267 ⁵ 267 ⁵ 268 ⁰	+10 ² +10 ³ +10 ⁴ +10 ¹ +10 ²	-69 ⁵ -55 ³ -40 ¹ -27 ⁸ -14 ⁶
1883. Jan. 1 ¹⁵ 6	0	7	0	4	268 ⁶	+10 ²	-1 ⁴
Means ...	...	...	5	11	267 ⁵⁰	+10 ²³	...
Group 922. A small spot.							
Dec. 28 ¹⁷ 8	8	17	4	9	328 ⁴	-12 ⁸	+6 ⁰
Means ...	...	...	4	9	328 ⁴	-12 ⁸	...
Group 923. Two very small spots on December 29. Only one remains on December 30.							
Dec. 29 ³⁰ 2 30 ²³ 8	6 0	19 8	5 0	15 9	356 ⁹ 358 ⁴	+7 ⁰ +7 ⁷	+49 ³ +63 ¹
Means ...	...	...	3	12	357 ⁶⁵	+7 ³⁵	...
Group 924. Several very small spots.							
Dec. 30 ²³ 8 31 ¹⁹ 8	14 54	50 190	9 41	30 145	328 ⁹ 330 ⁷	-17 ¹ -16 ⁴	+33 ⁶ +48 ¹
1883. Jan. 1 ¹⁵ 6	23	113	26	124	332 ⁴	-16 ⁴	+62 ⁴
Means ...	...	...	25	100	300 ⁶⁷	-16 ⁶³	...
Group 925. Two regular spots, with, on some days, smaller spots in their neighbourhood.							
Dec. 30 ²³ 8 31 ¹⁹ 8	21 97	78 376	12 54	44 209	284 ¹ 285 ²	-29 ⁰ -28 ⁹	-11 ² +2 ⁶

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 925—continued.									Group 927—continued.								
1883. _a						°	°	°	1883. _a						°	°	°
Jan. 1 ^h 15 ^m 6	114	614	65	351	283 ^h 8	—28 ^m 7	+13 ^s 8		Jan. 5 ^h 17 ^m 0	62	396	32	205	213 ^h 6	—17 ^m 2	—3 ^s 5	
2 ^h 42 ^m 9	162	591	102	373	283 ^h 2	—28 ^m 5	+30 ^s 0		6 ^h 46 ^m 3	90	307	47	163	213 ^h 6	—18 ^m 0	+13 ^s 5	
3 ^h 15 ^m 5	76	519	54	365	282 ^h 5	—28 ^m 3	+38 ^s 8		7 ^h 18 ^m 1	35	272	20	153	213 ^h 7	—18 ^m 0	+23 ^s 0	
4 ^h 19 ^m 0	45	361	39	313	282 ^h 0	—27 ^m 9	+52 ^s 0		8 ^h 42 ^m 3	32	209	21	139	213 ^h 7	—18 ^m 1	+39 ^s 4	
5 ^h 17 ^m 0	37	191	47	246	283 ^h 1	—27 ^m 9	+66 ^s 0		9 ^h 43 ^m 5	28	163	23	135	213 ^h 3	—18 ^m 5	+52 ^s 3	
6 ^h 46 ^m 3	0	20	0	88	285 ^h 2	—27 ^m 7	+85 ^s 1		10 ^h 25 ^m 7	19	93	21	104	213 ^h 8	—18 ^m 5	+63 ^s 6	
Means	...	...	47	249	283 ^h 64	—283 ^m 6	...		11 ^h 16 ^m 8	15	78	27	144	213 ^h 0	—18 ^m 7	+74 ^s 9	
Group 926.									Group 928.								
A very small spot on 1882 December 30. Other spots appear on the following days, and the group rapidly increases in size until 1883 January 3. After passing the central meridian on 1883 January 4, the group begins to decrease, and entirely disappears before January 8.									Two small spots on 1882 December 31. The preceding spot has disappeared before 1883 January 1.								
1882.									1882.								
Dec. 30 ^h 23 ^m 8	0	8	0	9	231 ^h 4	—9 ^m 5	—63 ^s 9		Dec. 31 ^h 19 ^m 8	9	74	9	74	340 ^h 3	+13 ^m 9	+57 ^s 7	
31 ^h 19 ^m 8	8	66	6	54	230 ^h 1	—9 ^m 9	—52 ^s 5										
1883.									1883.								
Jan. 1 ^h 15 ^m 6	52	215	34	139	231 ^h 1	—10 ^m 0	—38 ^s 9		Jan. 1 ^h 15 ^m 6	0	19	0	29	338 ^h 9	+14 ^m 1	+68 ^s 9	
2 ^h 42 ^m 9	102	453	55	245	231 ^h 9	—10 ^m 2	—21 ^s 3										
3 ^h 15 ^m 5	63	336	33	173	232 ^h 9	—9 ^m 8	—10 ^s 8										
4 ^h 19 ^m 0	49	233	24	117	233 ^h 1	—10 ^m 1	+3 ^s 1										
5 ^h 17 ^m 0	71	228	37	121	233 ^h 0	—10 ^m 1	+15 ^s 9										
6 ^h 46 ^m 3	15	72	9	43	233 ^h 4	—10 ^m 7	+33 ^s 3										
7 ^h 18 ^m 1	12	44	9	30	233 ^h 5	—10 ^m 8	+42 ^s 8										
Means	...	...	23	103	232 ^h 27	—10 ^m 12	...		Means	...	...	5	52	339 ^h 60	+14 ^m 00	...	
Group 927.									Group 929.								
A regular spot.									A small regular spot on 1882 December 31. It gradually becomes elongated in the direction of the solar equator, breaks up into several small spots on 1883 January 4, and gradually disappears.								
1882.									1882.								
Dec. 30 ^h 23 ^m 8	19	57	57	167	214 ^h 8	—18 ^m 4	—80 ^s 5		Dec. 31 ^h 19 ^m 8	11	70	25	159	204 ^h 8	—20 ^m 9	—77 ^s 8	
31 ^h 19 ^m 8	26	171	35	227	214 ^h 7	—18 ^m 1	—67 ^s 9										
1883.									1883.								
Jan. 1 ^h 15 ^m 6	27	205	24	183	214 ^h 9	—17 ^m 4	—55 ^s 1		Jan. 1 ^h 15 ^m 6	18	101	22	123	204 ^h 8	—20 ^m 8	—65 ^s 2	
2 ^h 42 ^m 9	65	287	42	189	214 ^h 1	—17 ^m 5	—39 ^s 1		2 ^h 42 ^m 9	39	172	31	135	204 ^h 2	—21 ^m 2	—49 ^s 0	
3 ^h 15 ^m 5	48	296	29	176	214 ^h 1	—17 ^m 2	—29 ^s 6		3 ^h 15 ^m 5	24	109	16	74	204 ^h 3	—20 ^m 8	—39 ^s 4	
4 ^h 19 ^m 0	54	342	29	183	213 ^h 9	—17 ^m 5	—16 ^s 1		4 ^h 19 ^m 0	9	54	5	31	204 ^h 0	—20 ^m 9	—26 ^s 0	
									5 ^h 17 ^m 0	0	8	0	4	203 ^h 9	—20 ^m 6	—13 ^s 2	
									6 ^h 46 ^m 3	0	36	0	19	206 ^h 0	—20 ^m 4	+5 ^s 9	
									7 ^h 18 ^m 1	0	7	0	4	203 ^h 9	—22 ^m 0	+13 ^s 2	
Means	...	...	...	...	...	...	...		Means	...	...	12	69	204 ^h 49	—20 ^m 95	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.		
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 930. A large group composed of a great number of spots very irregularly disposed. It decreases rapidly after it has passed the central meridian.								Group 934. Irregular spot.									
1883. ^a								1883. ^a									
Jan.	1 ^h 15 ^m 6 ^s	32	186	79	461	192°0	+ 5°2	- 78°0	Jan.	12 ^h 15 ^m 9 ^s	19	92	45	221	48°7	+ 13°8	- 76°4
	2 ^h 42 ^m 9 ^s	140	745	144	802	191°2	+ 4°9	- 62°0		13 ^h 15 ^m 6 ^s	28	237	34	283	48°9	+ 13°8	- 63°1
	3 ^h 15 ^m 5 ^s	104	733	84	602	192°1	+ 5°3	- 51°6		14 ^h 16 ^m 0 ^s	40	300	33	249	48°7	+ 13°6	- 50°1
	4 ^h 19 ^m 0 ^s	105	1001	66	633	193°0	+ 5°0	- 37°0		15 ^h 52 ^m 1 ^s	90	428	56	265	48°8	+ 13°3	- 32°0
	5 ^h 17 ^m 0 ^s	127	1061	71	593	193°2	+ 5°3	- 23°9		16 ^h 59 ^m 8 ^s	70	515	39	285	49°1	+ 12°7	- 17°6
	6 ^h 46 ^m 3 ^s	140	880	71	447	194°8	+ 5°0	- 5°3		17 ^h 15 ^m 9 ^s	55	419	30	224	49°3	+ 13°3	- 9°9
	7 ^h 18 ^m 1 ^s	83	585	43	299	194°4	+ 4°7	+ 3°7		18 ^h 15 ^m 7 ^s	64	489	34	258	49°5	+ 13°2	+ 3°4
	8 ^h 42 ^m 3 ^s	22	129	12	72	197°4	+ 4°8	+ 22°1		19 ^h 18 ^m 3 ^s	86	483	47	268	49°6	+ 13°4	+ 17°0
	9 ^h 43 ^m 5 ^s	53	155	34	97	197°5	+ 4°9	+ 36°5		20 ^h	No photograph.		(49	270	49°5	+ 13°4	+ 30°0
	10 ^h 25 ^m 7 ^s	23	220	16	162	196°7	+ 4°4	+ 46°5		21 ^h 17 ^m 9 ^s	68	372	50	272	49°3	+ 13°4	+ 43°0
	11 ^h 16 ^m 8 ^s	11	25	11	24	196°3	+ 4°9	+ 58°2		22 ^h 35 ^m 0 ^s	40	245	42	255	49°5	+ 13°8	+ 58°6
										23 ^h 42 ^m 5 ^s	0	53	0	98	49°1	+ 13°8	+ 72°3
Means	...	...	...	57	381	194°42	+ 4°95	...	Means	...	...	...	38	246	49°17	+ 13°46	...
Group 931. Two small spots.								Group 935. A small faint spot.									
Jan.	9 ^h 43 ^m 5 ^s	0	11	0	5	152°7	+ 10°2	- 8°3	Jan.	13 ^h 15 ^m 6 ^s	0	7	0	4	113°2	+ 24°6	+ 1°2
	10 ^h 25 ^m 7 ^s	23	36	12	19	151°9	+ 10°0	+ 1°7	Means	...	...	...	0	4	113°20	+ 24°60	...
	11 ^h 16 ^m 8 ^s	5	21	3	11	152°0	+ 9°7	+ 13°9									
Means	...	...	...	5	12	152°20	+ 9°97	...									
Group 932. Two very small spots close together.								Group 936. Two small spots on January 14. The following spot disappears before January 15, and the preceding spot is much reduced in size.									
Jan.	10 ^h 25 ^m 7 ^s	2	4	1	3	108°1	+ 25°5	- 42°1	Jan.	14 ^h 16 ^m 0 ^s	33	75	19	42	73°0	+ 8°7	- 25°8
										15 ^h 52 ^m 1 ^s	0	12	0	6	76°5	+ 8°4	- 4°3
										16 ^h 59 ^m 8 ^s	0	11	0	6	77°6	+ 8°5	+ 10°9
										17 ^h 15 ^m 9 ^s	0	4	0	2	78°3	+ 8°6	+ 19°1
Means	...	...	...	1	3	108°1	+ 25°5	...	Means	...	...	...	5	14	76°35	+ 8°55	...
Group 933. A large regular spot, followed by a number of smaller spots.								Group 937. A small spot.									
Jan.	10 ^h 25 ^m 7 ^s	39	359	67	620	76°5	- 8°3	- 73°7	Jan.	16 ^h 59 ^m 8 ^s	0	16	0	10	100°2	+ 3°2	+ 33°5
	11 ^h 16 ^m 8 ^s	71	505	75	540	75°8	- 8°6	- 62°3	Means	...	...	...	0	10	100°2	+ 3°2	...
	12 ^h 15 ^m 9 ^s	115	711	88	541	76°1	- 8°6	- 49°0									
	13 ^h 15 ^m 6 ^s	149	1023	92	633	76°1	- 8°7	- 35°9									
	14 ^h 16 ^m 0 ^s	176	1256	95	682	76°6	- 8°7	- 22°2									
	15 ^h 52 ^m 1 ^s	194	1190	97	599	75°8	- 9°5	- 5°0									
	16 ^h 59 ^m 8 ^s	276	1578	140	805	75°3	- 9°4	+ 8°6									
	17 ^h 15 ^m 9 ^s	129	1563	67	818	75°2	- 9°3	+ 16°0									
	18 ^h 15 ^m 7 ^s	125	1269	72	735	75°9	- 9°4	+ 29°8									
	19 ^h 18 ^m 3 ^s	179	1148	126	797	76°5	- 9°7	+ 43°9									
	20 ^h	No photograph.		(93	646	76°5	- 9°4	+ 57°0									
	21 ^h 17 ^m 9 ^s	39	343	60	494	76°5	- 9°1	+ 70°2									
Means	...	...	...	89	659	76°07	- 9°06	...	Jan.	16 ^h 59 ^m 8 ^s	54	317	54	315	6°6	- 10°2	- 60°1
										17 ^h 15 ^m 9 ^s	54	356	45	292	6°7	- 9°9	- 52°5
										18 ^h 15 ^m 7 ^s	45	539	30	351	6°4	- 10°0	- 39°7
										19 ^h 18 ^m 3 ^s	98	489	55	273	7°0	- 9°9	- 25°6

Areas and Heliographic Positions of Groups of Sun Spots—*continued*

Areas and Heliographic Positions of Groups of Sun Spots—continued															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 938—continued.								Group 943.							
1883. _a Jan. 20 21.179 22.350 23.425 Means ...								Three small spots on January 26. Their size and distance from each other have increased by January 27, and they disappear before January 28. 1883. _a Jan. 26.430 27.200 Means ...							
No photograph. (36 178 6.7 -10.2 -12.7) 31 166 16 83 6.4 -10.4 +0.1 16 120 8 64 8.2 -11.3 +17.3 17 75 10 46 10.3 -11.4 +33.5 ... 32 200 7.29 -10.41 ...								9 53 7 41 346.4 -13.3 +49.2 13 148 13 149 347.8 -13.1 +60.8 ... 10 95 347.10 -13.20 ...							
Group 939.								Group 944.							
Two small spots close to each other on January 21. They tend to separate on the following days. Jan. 21.179 12 47 7 27 355.0 +18.3 -11.3 22.350 19 138 10 75 353.1 +18.9 +2.2 23.425 16 66 9 38 353.0 +18.9 +16.2 Means ... 9 47 353.7 +18.7 ...								A number of very small spots following one another in a somewhat curved line. The group undergoes many minute changes. Jan. 26.430 28 134 19 93 257.1 +10.4 -40.1 27.200 20 112 13 68 256.8 +11.1 -30.2 28.199 0 104 0 59 254.5 +12.9 -19.5 29.201 0 37 0 19 254.0 +12.0 -6.7 Means ... 8 60 255.60 +11.60 ...							
Group 940.								Group 945.							
A group of five or six spots arranged in a circle on January 22. The preceding spot alone remains on January 23. Jan. 22.350 38 149 31 118 41.5 -12.0 +50.6 23.425 15 65 19 83 44.2 -11.1 +67.4 Means ... 25 101 42.85 -11.55 ...								A very small spot. Jan. 26.430 0 11 0 9 240.9 -9.2 -56.3 Means ... 0 9 240.90 -9.20 ...							
Group 941.								Group 946.							
A regular spot. Several very small spots are seen close to it on January 26. Jan. 22.350 23 74 39 129 276.9 -27.8 -74.0 23.425 26 123 27 128 276.4 -27.6 -60.4 24 No photograph. (29 137 276.1 -27.5 -47.5) 25 No photograph. (31 145 275.8 -27.3 -34.6) 26.430 57 266 33 154 275.5 -27.2 -21.7 27.200 28 217 15 119 275.8 -27.2 -11.2 28.199 38 192 21 103 275.1 -27.2 +1.1 29.201 36 167 20 92 274.5 -26.8 +13.8 30.430 36 203 22 124 273.6 -26.9 +29.1 31.422 28 109 19 77 272.9 -26.8 +41.5 Feb. 1.162 37 129 30 107 273.0 -26.8 +51.3 2.194 19 99 22 115 272.6 -27.0 +64.5 3.427 5 23 12 57 271.8 -27.6 +79.9 Means ... 25 114 274.62 -27.21 ...								A small regular spot. Jan. 27.200 7 37 13 68 212.1 -19.3 -74.9 28.199 19 70 20 75 211.6 -19.3 -62.4 29.201 33 120 25 92 211.7 -19.1 -49.0 30.430 20 147 12 90 210.9 -19.3 -33.6 31.422 23 90 13 49 210.7 -19.5 -20.7 Feb. 1.162 20 73 11 38 210.9 -19.5 -10.8 2.194 9 36 4 18 210.2 -19.8 +2.1 3.427 0 11 0 6 210.2 -19.8 +18.3 Means ... 12 55 211.04 -19.45 ...							
Group 942.								Group 947.							
A small faint spot. Jan. 23.425 0 8 0 11 268.6 -14.1 -68.2 Means ... 0 11 268.60 -14.10 ...								A cluster of very small faint spots. Jan. 28.199 0 19 0 10 266.7 -14.5 -7.3 Means ... 0 10 266.70 -14.50 ...							

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 948. Two small spots on January 29. A third is seen on January 30, and the first two disappear before January 31.								Group 954. A regular spot.							
1883. _a Jan. 28 ¹⁹⁹	0	19	0	10	274.9	+11.4	+0.9	1883. _a Jan. 31 ⁴²²	0	77	0	174	155.8	+11.8	-75.6
29 ²⁰¹	21	93	11	51	274.2	+12.9	+13.5	Feb. 1 ¹⁶²	49	232	64	304	156.2	+11.7	-65.5
30 ⁴³⁰	23	96	15	60	275.8	+12.4	+31.3	2 ¹⁹⁴	54	234	46	202	156.2	+11.6	-51.9
31 ⁴²²	4	19	3	16	279.8	+11.9	+48.4	3 ⁴²⁷	83	318	54	208	155.8	+11.5	-36.1
Feb. 1 ¹⁶²	0	25	0	26	281.0	+12.1	+59.3	4 ⁵⁰⁹	73	339	41	193	155.6	+11.4	-22.1
Means ...	...	...	6	33	277.14	+12.14	...	5 ⁵⁶²	98	382	52	204	155.2	+11.5	-8.6
Group 949. Three small spots. One of them disappears before January 30.								6 ⁵²⁰	65	369	34	195	155.1	+11.2	+4.0
Jan. 29 ²⁰¹	0	86	0	46	263.5	+15.0	+2.8	7 ¹⁶⁰	60	358	32	192	155.5	+11.3	+12.7
30 ⁴³⁰	3	15	2	8	263.7	+14.3	+19.2	8 ¹⁶⁴	39	284	23	166	155.6	+11.2	+26.1
Means ...	...	...	1	27	263.60	+14.65	...	9 ⁵⁴⁵	65	272	48	199	155.2	+10.6	+43.8
Group 950. Two small spots.								10 ¹⁷²	35	169	31	148	155.8	+10.8	+52.7
Jan. 30 ⁴³⁰	0	11	0	13	311.1	-16.3	+66.6	11 ⁵⁴⁷	16	107	27	181	155.8	+11.2	+70.8
Means ...	...	...	0	13	311.10	-16.3	...	12 ¹⁶⁴	7	80	20	231	156.5	+11.5	+79.6
Group 951. Two very small faint spots.								Means ...	...	...	36	200	155.71	+11.33	...
Group 952. Two small faint spots.								Group 955. Three or four small spots on February 1. The group increases in size in the following days, and lengthens out into a long line of spots. It begins to diminish after crossing the central meridian, and gradually fades away.							
Jan. 30 ⁴³⁰	0	15	0	8	267.1	-13.1	+22.6	Feb. 1 ¹⁶²	18	117	14	86	175.4	-23.3	-46.3
Means ...	...	...	0	8	267.10	-13.10	...	2 ¹⁹⁴	42	215	26	131	176.3	-22.7	-31.8
Group 953. A small faint spot.								3 ⁴²⁷	57	469	31	255	176.5	-22.3	-15.4
Jan. 30 ⁴³⁰	0	19	0	12	203.7	-3.9	-40.8	4 ⁵⁰⁹	84	442	44	232	177.4	-23.2	-0.3
Means ...	...	...	0	12	203.70	-3.90	...	5 ⁵⁶²	88	433	48	233	177.1	-23.2	+13.3
Group 954. A regular spot.								6 ⁵²⁰	101	437	57	252	176.3	-23.2	+25.2
Jan. 30 ⁴³⁰	0	11	0	8	197.7	-8.2	-46.8	7 ¹⁶⁰	45	307	28	192	177.0	-23.1	+34.2
Means ...	...	...	0	8	197.70	-8.20	...	8 ¹⁶⁴	13	121	10	91	176.6	-23.0	+47.1
Group 955. Three or four small spots on February 1. The group increases in size in the following days, and lengthens out into a long line of spots. It begins to diminish after crossing the central meridian, and gradually fades away.								Means ...	...	...	32	184	176.58	-23.00	...
Group 956. Three small spots on February 2, of which only the largest remains on February 3.								Group 957. A faint spot of irregular outline.							
Feb. 2 ¹⁹⁴	0	50	0	50	268.1	-21.0	+60.0	Feb. 2 ¹⁹⁴	0	20	0	10	201.3	-5.3	-6.8
3 ⁴²⁷	3	24	6	48	268.5	-21.3	+76.6	Means ...	...	...	0	10	201.30	-5.30	...
Means ...	...	...	3	49	268.30	-21.15	...								

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.					
Group 958. A small faint spot.									Group 961—continued.								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520									1883. _d Feb. 18.243								
1883. _d Feb. 6.520																	

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 965. A small faint spot.							
1883. _a Feb. 13 ⁴³⁶	0	20	0	12	91 ¹	-17 ⁷	+31 ⁰
Means ...	...	...	0	12	91 ¹⁰	-17 ⁷⁰	...
Group 966. Two small spots.							
Feb. 13 ⁴³⁶	0	38	0	22	43 ⁴	+15 ⁵	-16 ⁷
Means ...	...	...	0	22	43 ⁴⁰	+15 ⁵⁰	...
Group 967. Two small spots. Two or three smaller spots are seen between them on February 16. The following spot of the pair disappears before February 19.							
Feb. 14 ¹⁵⁹	0	8	0	9	346 ³	-15 ⁷	-64 ³
15 ¹⁶³	14	64	10	47	350 ⁵	-16 ⁰	-46 ⁹
16 ⁵⁸²	28	109	15	61	351 ⁸	-15 ⁷	-26 ⁹
17 ³²⁰	16	53	8	27	353 ⁴	-15 ⁶	-15 ⁵
18 ²⁴³	20	55	10	28	353 ⁶	-15 ⁷	-3 ³
19 ²⁰⁴	7	22	4	11	355 ³	-15 ⁷	+11 ¹
20 ¹⁵⁷	9	55	5	30	355 ⁹	-15 ⁴	+24 ³
21 ¹⁵⁵	0	34	0	21	356 ⁴	-15 ⁴	+37 ⁹
Means ...	...	...	7	29	352 ⁹⁰	-15 ⁶⁵	...
Group 968. A small faint spot.							
Feb. 16 ⁵⁸²	0	11	0	6	26 ⁰	+15 ¹	+7 ³
Means ...	...	...	0	6	26 ⁰⁰	+15 ¹⁰	...
Group 969. Two or three small faint spots, showing a marked southerly drift in latitude.							
Feb. 18 ²⁴³	5	24	4	17	309 ²	-17 ⁷	-47 ⁷
19 ²⁰⁴	4	63	2	39	307 ⁹	-19 ⁷	-36 ³
20 ¹⁵⁷	0	13	0	7	309 ⁴	-20 ¹	-22 ²
Means ...	...	...	2	21	308 ⁸³	-19 ¹⁷	...
Group 970. A small faint spot.							
Feb. 19 ²⁰⁴	0	19	0	19	39 ⁶	+17 ²	+55 ⁴
Means ...	...	...	0	19	39 ⁶⁰	+17 ²⁰	...
Group 971. A close cluster of very small spots. It rapidly increases in size between February 25 and 26, and on the latter date forms a group composed of a regular spot followed by a long line of small spots. These smaller spots all disappear before March 2.							
1883. _a Feb. 24 ¹⁶⁵	0	55	0	34	244 ¹	-12 ⁹	-34 ⁸
25 ²²⁴	9	63	5	34	244 ²	-13 ⁰	-20 ⁶
26 ⁵⁴⁵	69	303	35	152	245 ⁹	-12 ⁵	-1 ⁶
27 ⁵⁸⁹	45	333	23	172	247 ¹	-12 ¹	+13 ⁴
28 ⁵⁴⁰	55	274	30	153	247 ⁵	-12 ¹	+26 ³
Mar. 1 ¹⁶¹	36	198	22	121	247 ⁷	-12 ³	+34 ⁷
2 ⁶⁰⁹	32	88	27	74	247 ⁶	-12 ¹	+53 ⁶
3 ⁵¹⁹	0	38	0	46	247 ⁹	-12 ⁴	+65 ⁹
4 ⁴⁷³	0	21	0	48	248 ⁴	-12 ³	+79 ⁰
Means ...	...	...	16	93	246 ⁷¹	-12 ⁴¹	...
Group 972. A small faint spot. A second spot is seen on February 27 to 28.							
Feb. 26 ⁵⁴⁵	0	16	0	16	187 ⁶	+4 ⁷	-59 ⁹
27 ⁵⁸⁹	8	39	6	29	189 ³	+4 ⁷	-44 ⁴
28 ⁵⁴⁰	0	43	0	26	189 ⁹	+5 ⁰	-31 ³
Mar. 1 ¹⁶¹	0	24	0	13	188 ⁹	+5 ²	-24 ¹
Means ...	...	...	2	21	188 ⁹³	+4 ⁹⁰	...
Group 973. A regular spot. A small spot follows it closely on March 7.							
Mar. 7 ⁴⁵⁶	27	125	36	170	60 ⁴	-13 ²	-69 ⁷
8 ⁵⁹²	17	130	14	109	61 ¹	-13 ⁸	-54 ⁰
9 ⁴¹³	48	90	33	61	60 ⁸	-13 ⁴	-43 ⁵
10 ⁴¹³	16	81	10	47	60 ⁴	-13 ²	-30 ⁸
11	...	...	5	30	60 ⁶	-13 ⁰	-16 ³
12 ⁵⁸⁸	0	25	0	12	60 ⁷	-12 ⁷	-1 ⁸
Means ...	...	...	16	72	60 ⁶⁷	-13 ²²	...
Group 974. Two or three very small spots.							
Mar. 8 ⁵⁹²	9	61	5	32	100 ⁴	-17 ⁵	-14 ⁷
9 ⁴¹³	24	60	12	30	102 ¹	-17 ⁴	-2 ²
10 ⁴¹³	7	68	4	36	102 ¹	-17 ²	+10 ⁹
Means ...	...	...	7	33	101 ⁵³	-17 ³⁷	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date.		Projected Area of		Area for Group.		Mean	Mean	Longitude	Date.		Projected Area of		Area for Group.		Mean	Mean	Longitude
Greenwich	Civil Time.	Umbra.	Whole Spot.	Umbra.	Whole Spot.	Longitude of Group.	Latitude of Group.	from Central Meridian.	Greenwich	Civil Time.	Umbra.	Whole Spot.	Umbra.	Whole Spot.	Longitude of Group.	Latitude of Group.	from Central Meridian.
Group 975.									Group 979.								
Two small spots. The preceding spot disappears before March 9.									A straggling group, composed of about half-a-dozen small spots.								
1883. ^a									1883. ^a								
Mar. 8 ^h 59 ^m 2	8	36	5	21	86°3	+11°8	-28°8		Mar. 12 ^h 58 ^m 8	39	218	19	112	60°3	-19°5	-2°2	
9 ^h 41 ^m 3	3	7	2	4	85°9	+12°4	-18°4		13 ^h 44 ^m 7	35	170	19	88	59°9	-19°5	+8°8	
									14 ^h 17 ^m 7	12	119	6	64	60°0	-18°9	+18°5	
Means ...	...	...	4	13	86°10	+12°10	...		Means ...	...	...	15	88	60°07	-19°30	...	
Group 976.									Group 980.								
A small spot. A number of other small spots appear close to it after March 10, and form with it a compact cluster.									A regular spot, rapidly diminishing in size after it has passed the central meridian. Two or three very small spots are seen near it on March 16, 17, and 18.								
Mar. 8 ^h 59 ^m 2	2	28	4	42	47°5	+15°4	-67°6		Mar. 12 ^h 58 ^m 8	13	72	17	96	357°5	+13°7	-65°0	
9 ^h 41 ^m 3	11	27	11	28	47°3	+16°3	-57°0		13 ^h 44 ^m 7	25	72	23	67	356°7	+13°6	-54°4	
10 ^h 41 ^m 3	0	38	0	29	48°0	+16°9	-43°2		14 ^h 17 ^m 7	13	122	10	93	356°6	+13°3	-44°9	
11 ^h	No photograph.	(0	50	48°9	+16°1	-28°0)			15 ^h 39 ^m 9	59	169	36	103	356°3	+13°0	-29°1	
12 ^h 58 ^m 8	0	130	0	72	49°8	+15°3	-12°7		16 ^h 49 ^m 0	30	154	16	85	356°2	+13°3	-14°9	
13 ^h 44 ^m 7	33	202	18	109	50°1	+15°4	-1°0		17 ^h 40 ^m 5	25	164	13	88	356°6	+12°6	-2°4	
14 ^h 17 ^m 7	21	209	12	114	49°9	+15°4	+8°4		18 ^h 20 ^m 0	17	67	9	36	356°4	+12°8	+8°0	
15 ^h 39 ^m 9	27	124	16	74	50°7	+15°3	+25°3		19 ^h 15 ^m 3	10	67	6	38	356°8	+13°0	+20°9	
16 ^h 49 ^m 0	0	133	0	95	51°2	+15°2	+40°1		20 ^h 16 ^m 1	6	30	4	20	356°8	+13°0	+34°2	
17 ^h 40 ^m 5	0	37	0	34	51°0	+16°4	+52°0		21 ^h 15 ^m 2	0	23	0	18	357°0	+13°0	+47°5	
Means ...	...	...	6	65	49°44	+15°77	...		Means ...	...	...	13	64	356°69	+13°13	...	
Group 977.									Group 981.								
Two or three very small faint spots near together.									A very fine spot, with a number of very small spots following it. The spot is nearly divided into two by a brilliant bridge, and the two parts are measured separately on March 17, 22, 23, and 24. The spot diminishes in size very rapidly after March 24.								
Mar. 10 ^h 41 ^m 3	4	53	2	28	79°5	-21°4	-11°7		Mar. 16 ^h 49 ^m 0	33	284	56	480	297°5	-8°0	-73°6	
11 ^h	No photograph.	(1	33	80°0	-21°3	+3°1)			17 ^h 40 ^m 5	85	511	85	533	297°2	-8°3	-61°8	
12 ^h 58 ^m 8	0	71	0	38	80°4	-21°2	+17°9		18 ^h 20 ^m 0	71	883	55	706	296°8	-8°2	-51°6	
13 ^h 44 ^m 7	8	60	5	35	79°9	-20°6	+28°8		19 ^h 15 ^m 3	98	1002	62	644	296°9	-7°9	-39°0	
Means ...	...	...	2	34	79°95	-21°25	...		20 ^h 16 ^m 1	99	939	55	521	297°5	-7°8	-25°1	
Group 978.									Group 982.								
A regular spot, with a number of smaller spots following it closely. These latter diminish in size, and fade out one by one, until on March 20 the preceding spot of the group alone remains.									A scattered group of very small spots when first seen on March 19. It rapidly increases in size on the following days, and forms a long straight line of spots, of which the first and last are the largest. The intermediate spots disappear before March 25.								
Mar. 10 ^h 41 ^m 3	0	119	0	233	14°8	-12°6	-76°4		Mar. 19 ^h 15 ^m 3	0	11	0	8	289°7	-19°1	-46°2	
11 ^h	No photograph.	(12	226	15°3	-12°7	-61°6)			20 ^h 16 ^m 1	9	71	5	43	289°2	-19°1	-33°4	
12 ^h 58 ^m 8	33	303	23	219	15°8	-12°7	-46°7		21 ^h 15 ^m 2	16	159	9	86	290°5	-18°9	-19°0	
13 ^h 44 ^m 7	88	541	53	328	16°1	-13°1	-35°0										
14 ^h 17 ^m 7	75	525	42	289	17°0	-12°6	-24°5										
15 ^h 39 ^m 9	110	630	56	319	17°3	-13°0	-8°1										
16 ^h 49 ^m 0	88	530	44	267	17°9	-13°2	+6°8										
17 ^h 40 ^m 5	76	455	40	243	18°4	-13°2	+19°4										
18 ^h 20 ^m 0	49	350	29	202	18°5	-13°1	+30°1										
19 ^h 15 ^m 3	25	242	17	166	19°0	-13°0	+43°1										
20 ^h 16 ^m 1	12	155	11	137	18°8	-13°1	+56°2										
21 ^h 15 ^m 2	9	60	12	83	19°3	-12°8	+69°8										
Means ...	...	...	28	226	17°35	-12°93	...										

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 982—continued.								Group 986. A small faint spot.							
1883. _d					°	°	°	1883. _d					°	°	°
Mar. 22 ⁵⁸⁹	75	473	38	242	288.9	-19.2	-1.8	Mar. 28 ⁴²⁴	0	36	0	34	272.0	-18.7	+58.3
23 ⁴⁶¹	67	440	35	228	291.3	-18.0	+12.2	29 ⁴⁴³	0	47	0	68	275.2	-19.3	+75.0
24 ⁴⁹³	69	497	39	286	293.2	-17.6	+27.7	30 ¹⁵⁰	0	9	0	21	270.2	-19.7	+79.3
25 ⁵⁹¹	33	221	24	149	292.6	-17.7	+41.6								
26 ⁴⁸¹	0	163	0	146	297.4	-16.7	+58.2								
Means ...	...	...	19	149	291.60	-18.29	...	Means ...	...	...	0	41	272.47	-19.23	...
Group 983. Two small faint spots:								Group 987. A very large regular spot, with two or three small spots near it. These disappear before April 2.							
Mar. 22 ⁵⁸⁹	0	56	0	43	333.9	+17.8	+43.2	Mar. 28 ⁴²⁴	25	185	90	669	133.6	+13.4	-80.1
Means ...	...	...	0	43	333.90	+17.80	...	29 ⁴⁴³	58	513	75	674	135.2	+13.2	-65.0
								30 ¹⁵⁰	124	747	119	719	135.1	+13.0	-55.8
								31 ⁵⁷¹	171	857	114	572	134.9	+13.0	-37.2
Group 984. A group of several very small spots on March 22, which increases in size very rapidly on the following days, and forms a long line of spots, of which the preceding spot is the largest. The group rapidly diminishes in size after passing the central meridian, the following spots disappearing the first, so that on March 31 the preceding spot is left alone.								Apr. 1 ⁴⁷⁵	202	1028	118	602	135.0	+13.3	-25.2
Mar. 22 ⁵⁸⁹	21	135	15	93	249.2	-24.2	-41.5	2 ⁴¹¹	192	1012	104	547	135.6	+13.3	-12.2
23 ⁴⁶¹	46	352	29	214	248.1	-24.5	-31.0	3 ⁴⁰⁶	196	973	103	514	136.0	+13.6	+1.3
24 ⁴⁹³	142	682	78	374	248.3	-24.3	-17.2	4 ¹³⁷	139	928	75	505	135.5	+13.6	+10.4
25 ⁵⁹¹	107	639	55	335	249.7	-24.2	-1.3	5 ⁵⁵⁶	158	880	97	541	135.7	+13.6	+29.4
26 ⁴⁸¹	109	593	59	317	250.7	-24.0	+11.5	6 ⁴⁰⁶	134	817	94	575	135.7	+13.3	+40.5
27 ⁴¹⁷	51	432	30	249	252.0	-23.8	+25.0	7 ⁴⁵³	84	447	78	417	135.6	+13.8	+54.3
28 ⁴²⁴	63	426	41	280	252.0	-23.9	+38.3	8 ⁵⁵⁶	42	200	64	305	135.5	+13.1	+68.7
29 ⁴⁴³	45	338	38	280	252.4	-24.1	+52.2	9 ⁴²¹	15	90	55	327	135.7	+13.3	+80.4
30 ¹⁵⁰	23	150	26	168	254.8	-24.0	+63.9	Means ...	...	...	91	536	135.32	+13.35	...
31 ⁵⁷¹	17	67	50	201	254.7	-24.0	+82.6								
Means ...	...	...	42	251	251.19	-24.10	...	Group 988. A small regular spot.							
Group 985. A regular spot, followed by a few small spots on March 27, 28, 29, and 30.								Mar. 29 ⁴⁴³	4	62	9	133	122.7	-12.9	-77.5
Mar. 26 ⁴⁸¹	0	111	0	143	171.5	-7.9	-67.7	30 ¹⁵⁰	20	98	26	125	122.9	-13.1	-68.0
27 ⁴¹⁷	0	221	0	195	171.1	-8.8	-55.9	31 ⁵⁷¹	35	200	26	151	123.0	-13.2	-49.1
28 ⁴²⁴	56	320	37	215	171.2	-8.1	-42.5	Apr. 1 ⁴⁷⁵	36	241	22	150	123.7	-13.6	-36.5
29 ⁴⁴³	62	414	35	236	171.0	-7.9	-29.2	2 ⁴¹¹	42	237	23	130	123.9	-13.6	-23.9
30 ¹⁵⁰	53	369	28	195	171.7	-8.1	-19.2	3 ⁴⁰⁶	27	185	14	94	124.2	-13.8	-10.5
31 ⁵⁷¹	54	387	27	193	171.8	-8.2	-0.3	4 ¹³⁷	29	100	15	51	124.5	-13.8	-0.6
April 1 ⁴⁷⁵	37	387	19	196	171.5	-8.2	+11.3	5 ⁵⁵⁶	36	144	19	77	124.5	-14.0	+18.2
2 ⁴¹¹	27	187	15	101	171.4	-8.3	+23.6	6 ⁴⁰⁶	21	142	12	83	125.1	-14.3	+29.9
3 ⁴⁰⁶	30	180	19	112	171.8	-8.2	+37.1	7 ⁴⁵³	0	100	0	69	125.0	-13.8	+43.7
4 ¹³⁷	23	112	17	82	171.9	-8.2	+46.8	8 ⁵⁵⁶	0	33	0	31	125.2	-14.7	+58.4
5 ⁵⁵⁶	0	99	0	115	171.2	-8.5	+64.9	Means ...	...	...	15	99	124.06	-13.71	...
6 ⁴⁰⁶	0	52	0	110	172.3	-8.4	+77.1	Group 989. Two or three small spots close together.							
Means ...	...	...	16	158	171.53	-8.23	...	Mar. 30 ¹⁵⁰	22	168	31	242	123.5	+13.5	-67.4
								31 ⁵⁷¹	12	106	10	85	124.0	+12.4	-48.1

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 989—continued.							
1883. _d					°	°	°
Apr. 1'475	0	121	0	79	123'6	+12'2	-36'6
2'411	0	100	0	58	123'8	+12'5	-24'0
3'406	0	73	0	40	122'8	+13'3	-11'9
Means ...	...	...	8	101	123'54	+12'78	...
Group 990. A small faint spot.							
Mar. 30'150	0	22	0	51	114'5	+7'3	-76'4
31'571	0	23	0	22	115'2	+7'4	-56'9
Apr. 1'475	0	25	0	18	115'4	+7'2	-44'8
Means ...	...	...	0	30	115'03	+7'30	...
Group 991. A small spot on April 1. Other small spots appear following it on the following days, and the group increases in size until it passes the central meridian. The following spots then disappear very quickly, and the preceding spot alone remains on April 7.							
Apr. 1'475	12	69	12	70	100'3	+2'1	-59'9
2'411	37	234	28	179	99'1	+2'3	-48'7
3'406	16	217	9	134	100'2	+2'7	-34'5
4'137	57	221	33	125	99'0	+2'5	-26'1
5'556	68	378	35	194	99'2	+2'8	-7'1
6'406	36	349	18	178	100'8	+2'8	+5'6
7'453	0	78	0	44	106'3	+3'6	+25'0
8'556	17	75	11	50	107'0	+3'5	+40'2
9'421	10	45	8	38	107'7	+3'9	+52'4
Means ...	...	...	17	112	102'18	+2'91	...
Group 992. A small spot on April 1, which rapidly increases in size on the following days. A second spot appears following it on April 2, and smaller spots are formed between the two on April 4 and 5. The group diminishes in size soon after passing the central meridian, and the preceding spot alone remains on April 11.							
Apr. 1'475	0	58	0	85	89'1	-18'1	-71'1
2'411	30	275	27	271	87'5	-17'3	-60'3
3'406	82	575	58	411	89'2	-17'5	-45'5
4'137	71	462	44	292	89'0	-17'3	-36'1
5'556	143	879	77	470	89'4	-17'3	-16'9
6'406	157	1062	81	550	88'1	-17'1	-7'1
7'453	54	643	28	332	88'4	-17'1	+7'1
8'556	99	541	55	299	88'7	-17'4	+21'9
9'421	68	445	44	282	91'8	-16'8	+36'5
10'552	40	231	35	195	94'3	-16'1	+53'9
11'139	15	161	16	171	95'0	-15'7	+62'4
12'431	0	54	0	134	95'0	-16'1	+79'4
Means ...	...	...	39	291	90'46	-16'98	...
Group 993. A very small faint spot.							
1883. _d					°	°	°
Apr. 2'411	0	19	0	11	126'8	+8'9	-21'0
Means ...	...	...	0	11	126'80	+8'90	...
Group 994. Two small spots.							
Apr. 5'556	0	23	0	18	154'6	+7'5	+48'3
6'406	0	104	0	112	156'0	+7'8	+60'8
Means ...	...	...	0	65	155'3	+7'65	...
Group 995. A small faint spot.							
Apr. 6'406	0	20	0	12	64'9	-8'6	-30'3
Means ...	...	...	0	12	64'90	-8'60	...
Group 996. A small faint spot on April 7. It rapidly increases in size on the two following days, and other spots appear. The group begins to decrease as it passes the central meridian. The following spots disappear and the preceding spot alone remains on April 13.							
Apr. 7'453	0	92	0	67	34'3	-14'1	-47'0
8'556	76	365	46	219	33'9	-13'7	-32'9
9'421	107	517	57	279	34'8	-13'6	-20'5
10'552	84	498	43	254	32'2	-13'6	-8'2
11'139	45	283	23	143	35'2	-13'4	+2'6
12'431	30	105	16	56	35'3	-13'5	+19'7
13'285	15	52	9	31	36'3	-13'2	+32'0
14'168	3	17	2	12	36'4	-13'4	+43'7
Means ...	...	...	25	133	34'80	-13'56	...
Group 997. Two very small faint spots.							
Apr. 9'421	0	28	0	19	27'8	+29'9	-27'5
10'552	0	69	0	44	26'8	+30'1	-13'6
11'139	8	43	5	27	26'0	+30'6	-6'6
Means ...	...	...	2	30	26'87	+30'20	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 998.							
A small spot on April 10 and 11. It has greatly increased in size by April 12, and forms a large group of very irregular shape. It continues to change with great rapidity on the following days, breaking up into a great number of small and somewhat scattered spots.							
1883. _d					°	°	°
Apr. 10 ⁵⁵²	13	48	10	39	351.2	+11.5	-49.2
11 ¹³⁹	6	42	5	29	351.3	+12.0	-41.3
12 ⁴³¹	163	788	96	460	350.5	+12.3	-25.1
13 ²⁸⁵	134	1013	73	551	350.2	+12.7	-14.1
14 ¹⁶⁸	150	1108	79	584	350.4	+12.6	-2.3
15 [•]	No photograph.	(68	423	351.9	+11.6	+14.5)	
16 ⁴⁸⁶	95	430	57	262	353.4	+10.6	+31.3
17 ¹⁴⁷	90	606	62	414	353.3	+11.0	+40.0
18 ³⁹¹	8	565	7	528	352.2	+12.5	+55.2
19 ¹⁴¹	44	359	59	444	351.6	+10.5	+64.6
Means ...	...	...	52	373	351.60	+11.73	...
Group 999.							
A large regular spot, followed by a large spot of irregular outline. Several small spots cluster round each of the large spots, and are measured with them. The following spot divides into two portions on April 14, and breaks up yet further on the following days. Only two small spots of this portion of the group remain on April 20, and only one on April 21; and this last disappears before April 22. Two new spots (which are measured together as one on April 21 and 22) appear on April 21.							
Apr. 12 ⁴³¹	46	153	65	222	305.2	-22.7	-70.4
13 ²⁸⁵	73	582	71	564	305.8	-23.0	-58.5
14 ¹⁶⁸	107	757	81	570	305.9	-22.9	-46.8
15 [•]	No photograph.	(92	643	305.9	-22.7	-31.5)	
16 ⁴⁸⁶	190	1313	103	715	305.9	-22.5	-16.2
17 ¹⁴⁷	156	1162	82	612	306.1	-22.4	-7.2
18 ³⁹¹	126	1177	67	622	306.1	-22.1	+9.1
19 ¹⁴¹	124	1033	69	568	305.1	-22.3	+18.1
20 ⁵³⁸	102	815	67	531	306.1	-22.1	+37.6
21 ⁴³⁹	80	578	63	446	304.7	-21.9	+48.1
22 ⁴³³	41	408	46	403	302.6	-22.4	+59.1
23 ⁶⁰³	16	144	37	294	304.6	-21.3	+76.5
Means ...	...	...	70	516	305.33	-22.36	...
Group 1000.							
A very fine spot of irregular outline, with a number of small spots close to it. The group greatly diminishes in size between April 14 and 16.							
Apr. 12 ⁴³¹	49	406	76	631	303.5	-15.2	-72.1
13 ²⁸⁵	92	776	93	783	303.6	-15.9	-60.7
14 ¹⁶⁸	109	1087	85	846	302.7	-16.0	-50.0
15 [•]	No photograph.	(88	613	302.8	-15.8	-34.1)	
16 ⁴⁸⁶	169	711	90	379	303.9	-15.5	-18.2
17 ¹⁴⁷	115	918	59	471	303.9	-15.5	-9.4
18 ³⁹¹	96	946	49	485	304.3	-16.0	+7.3
19 ¹⁴¹	137	824	73	437	304.0	-15.7	+17.0
20 ⁵³⁸	62	525	39	326	304.0	-16.2	+35.5
Group 1000—continued.							
1883. _d					°	°	°
Apr. 21 ⁴³⁹	78	349	58	257	303.6	-16.4	+47.0
22 ⁴³³	29	167	30	167	303.8	-17.0	+60.3
23 ⁶⁰³	0	33	0	65	304.1	-16.9	+76.0
Means ...	...	...	62	455	303.68	-16.01	...
Group 1001.							
Several spots in a compact cluster, followed by a number of spots, most of them small and arranged in a straight line. The group diminishes rapidly after passing the central meridian, the following spots disappearing before April 24.							
Apr. 13 ²⁸⁵	7	127	26	458	280.9	-16.4	-83.4
14 ¹⁶⁸	23	370	37	614	279.3	-17.5	-73.4
15 [•]	No photograph.	(47	470	280.0	-16.9	-57.4)	
16 ⁴⁸⁶	82	483	56	325	280.7	-16.3	-41.4
17 ¹⁴⁷	58	597	35	355	281.5	-15.9	-31.8
18 ³⁹¹	44	696	23	365	282.2	-16.1	-14.8
19 ¹⁴¹	61	712	32	362	282.5	-15.8	-4.5
20 ⁵³⁸	0	267	0	141	285.1	-15.3	+16.6
21 ⁴³⁹	32	250	18	142	282.7	-15.8	+26.1
22 ⁴³³	25	160	17	103	281.6	-16.0	+38.1
23 ⁶⁰³	45	106	42	98	285.2	-15.4	+57.1
24 ⁶¹⁰	0	15	0	23	285.6	-15.3	+70.8
Means ...	...	...	28	288	282.28	-16.06	...
Group 1002.							
A small spot.							
Apr. 16 ⁴⁸⁶	16	33	21	43	254.3	-24.7	-67.8
17 ¹⁴⁷	2	12	2	12	254.0	-24.5	-59.3
Means ...	...	...	12	28	254.15	-24.60	...
Group 1003.							
Two small spots. The following spot is only seen on April 17.							
Apr. 17 ¹⁴⁷	0	36	0	19	298.9	+8.3	-14.4
18 ³⁹¹	0	22	0	11	301.4	+7.5	+4.4
19 ¹⁴¹	0	5	0	3	300.4	+7.3	+13.4
Means ...	...	...	0	11	300.23	+7.70	...
Group 1004.							
Three or four very small spots arranged in a straight line. The group greatly increases in size before April 21, and forms a straight line of spots, of which the preceding spot is the largest. The following spots diminish after April 22, and disappear before April 24.							
Apr. 18 ³⁹¹	0	26	0	15	265.9	-6.1	-31.1
19 ¹⁴¹	2	38	1	21	266.1	-6.0	-20.9
20 ⁵³⁸	0	25	0	13	266.3	-6.0	-2.2

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1004—continued.							
1883. _d					°	°	°
Apr. 21 ^h 439	32	225	16	115	268.3	— 5.6	+ 11.7
22 ^h 433	42	442	24	243	268.7	— 5.1	+ 25.2
23 ^h 603	40	224	27	148	268.8	— 5.1	+ 40.7
24 ^h 610	30	97	26	84	269.5	— 4.6	+ 54.7
25 ^h 533	40	105	52	135	269.8	— 4.1	+ 67.2
26 ^h 418	0	30	0	76	269.9	— 4.1	+ 79.1
Means ...	...	...	16	94	268.14	— 5.19	...
Group 1005. Two small spots.							
Apr. 22 ^h 433	0	34	0	31	299.1	+ 7.8	+ 55.6
Means ...	...	...	0	31	299.10	+ 7.80	...
Group 1006. Two small spots.							
Apr. 22 ^h 433	0	20	0	17	189.4	+ 5.5	— 54.1
Means ...	...	...	0	17	189.40	+ 5.50	...
Group 1007. A small faint spot. A second is seen near it on April 23.							
Apr. 22 ^h 433	0	38	0	39	182.0	— 15.9	— 61.5
23 ^h 603	0	40	0	30	180.3	— 16.1	— 47.8
Means ...	...	...	0	35	181.15	— 16.00	...
Group 1008. A regular spot.							
Apr. 22 ^h 433	0	70	0	118	171.5	+ 7.3	— 72.0
23 ^h 603	16	114	15	106	172.0	+ 7.4	— 56.1
24 ^h 610	49	211	34	147	172.3	+ 7.7	— 42.5
25 ^h 533	50	370	30	240	172.8	+ 8.1	— 29.8
26 ^h 418	61	371	33	201	172.9	+ 8.2	— 17.9
27 ^h 202	45	324	23	168	173.6	+ 8.0	— 6.9
28 ^h 182	45	317	23	163	173.3	+ 7.8	+ 5.8
29 ^h 136	37	246	20	133	173.9	+ 7.4	+ 18.9
30 ^h 541	36	123	24	79	174.2	+ 7.6	+ 37.9
May 1 ^h 416	24	89	19	70	174.1	+ 7.8	+ 49.3
2 ^h 190	17	68	18	71	174.7	+ 7.6	+ 60.2
3 ^h 416	0	48	0	107	174.6	+ 7.7	+ 76.2
Means ...	...	...	20	134	173.33	+ 7.72	...
Group 1009. A small spot. A very small spot is seen near it on April 25, but disappears before April 26. Another very small spot appears on April 26, and others (which are measured with it) form in the neighbourhood on April 27.							
1883. _d					°	°	°
Apr. 23 ^h 603	0	16	0	29	154.6	+ 4.2	— 73.5
24 ^h 610	0	11	0	11	155.2	+ 4.6	— 59.6
25 ^h 533	16	41	12	31	156.0	+ 3.8	— 46.6
26 ^h 418	16	45	10	27	155.6	+ 5.5	— 35.2
27 ^h 202	26	71	15	40	156.7	+ 6.4	— 23.8
28 ^h 182	28	91	15	47	155.6	+ 5.8	— 11.9
29 ^h 136	16	51	8	26	155.6	+ 5.7	+ 0.6
Means ...	...	...	9	30	155.61	+ 5.14	...
Group 1010. A small spot. Two other small spots are seen near it on April 24 and 25.							
Apr. 24 ^h 610	24	83	12	43	209.9	+ 6.2	— 4.9
25 ^h 533	25	114	13	59	211.3	+ 5.5	+ 8.7
26 ^h 418	0	39	0	21	213.0	+ 4.5	+ 22.2
27 ^h 202	8	24	5	15	214.0	+ 4.8	+ 33.5
28 ^h 182	5	19	4	14	213.8	+ 4.6	+ 46.3
29 ^h 136	0	11	0	11	214.4	+ 4.4	+ 59.4
Means ...	...	...	6	27	212.73	+ 5.00	...
Group 1011. A small spot disappearing before May 1. Several other small spots are seen in its neighbourhood on April 29 to May 1.							
Apr. 24 ^h 610	0	14	0	26	142.2	+ 12.7	— 72.6
25 ^h 533	11	37	12	40	142.6	+ 12.5	— 60.0
26 ^h 418	12	47	9	38	142.1	+ 12.9	— 48.7
27 ^h 202	6	28	4	19	142.7	+ 12.7	— 37.8
28 ^h 182	12	49	7	28	142.4	+ 12.9	— 25.1
29 ^h 136	41	107	24	60	136.3	+ 14.1	— 18.7
30 ^h 541	8	166	4	86	137.1	+ 12.8	+ 0.8
May 1 ^h 416	0	54	0	29	136.4	+ 13.0	+ 11.6
Means ...	...	...	8	41	140.23	+ 12.95	...
Group 1012. Two small spots. Other small spots appear in their neighbourhood on April 26. The group has greatly diminished on April 27.							
Apr. 25 ^h 533	65	148	33	76	203.9	— 17.8	+ 1.3
26 ^h 418	31	173	16	92	203.7	— 17.2	+ 12.9
27 ^h 202	8	34	5	20	206.2	— 16.1	+ 25.7
Means ...	...	...	18	63	204.60	— 17.03	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1013. Two small spots.							
1883. _d Apr. 28·182	8	28	5	19	208·8	−15·1	+41·3
29·136	8	25	7	22	209·7	−15·0	+54·7
Means ...	...	...	6	21	209·25	−15·05	...
Group 1014. A small spot. A second is seen near it on April 29.							
Apr. 28·182	3	15	4	21	99·0	−15·6	−68·5
29·136	11	41	10	39	97·4	−17·3	−57·6
Means ...	...	...	7	30	98·20	−16·45	...
Group 1015. A small spot. A second is seen near it on May 1.							
Apr. 29·136	8	14	7	12	103·8	+13·6	−51·2
30·541	4	25	3	16	105·2	+13·6	−31·1
May 1·416	4	58	2	33	104·1	+14·0	−20·7
2·190	4	24	2	13	105·9	+14·4	−8·6
Means ...	...	...	4	19	104·75	+13·90	...
Group 1016. A number of very small faint spots arranged in a straight line. Only the last spot is left on May 4.							
May 1·416	7	62	4	33	107·6	+6·0	−17·2
2·190	21	67	10	34	108·5	+6·2	−6·0
3·416	10	54	5	28	108·4	+6·1	+10·0
4·491	0	21	0	12	106·5	+7·5	+22·3
Means ...	...	...	5	27	107·75	+6·45	...
Group 1017. A very small spot.							
May 1·416	0	34	0	18	109·5	+13·5	−15·3
2·190	0	49	0	26	110·5	+13·6	−4·0
Means ...	...	...	0	22	110·00	+13·55	...
Group 1018. Two small spots. The preceding spot disappears before May 4.							
1883. _d May 3·416	0	59	0	51	151·9	+10·7	+53·5
4·491	0	36	0	46	150·3	+10·4	+66·1
Means ...	...	...	0	49	151·10	+10·55	...
Group 1019. Two small faint spots.							
May 3·416	1	24	0	13	116·3	−19·4	+17·9
Means ...	...	...	0	13	116·30	−19·40	...
Group 1020. A small faint spot.							
May 3·416	0	7	0	9	31·3	−16·3	−67·1
Means ...	...	...	0	9	31·30	−16·30	...
Group 1021. A regular spot, with sometimes two or three very small spots close to it.							
May 4·491	15	82	28	148	10·0	−18·3	−74·2
5·516	17	142	18	150	9·4	−18·4	−61·2
6·430	20	124	16	97	9·3	−18·3	−49·2
7·133	26	217	18	146	9·2	−18·3	−40·0
8·143	32	192	18	111	9·4	−18·1	−26·5
9·141	34	156	18	83	9·5	−18·1	−13·1
10·128	32	221	17	115	9·7	−18·0	+0·0
11·409	43	194	23	104	9·7	−17·8	+17·0
12·162	21	132	12	77	9·9	−18·0	+27·2
13·517	14	74	10	54	9·9	−18·4	+45·1
14·161	11	62	10	54	9·6	−18·4	+53·4
Means ...	...	...	17	104	9·60	−18·19	...
Group 1022. Two small spots. The following spot disappears before May 9, and the preceding spot increases in size, breaking up into several portions on the following day.							
May 6·430	0	36	0	23	24·8	+11·0	−33·7
7·133	12	97	7	55	26·4	+11·0	−22·8
8·143	22	122	12	64	28·4	+10·9	−7·5
9·141	14	287	7	149	28·0	+11·1	+5·4
10·128	8	111	4	60	26·6	+11·4	+16·9
11·409	0	78	0	49	28·5	+11·5	+35·8
12·162	8	12	6	9	30·5	+10·7	+47·8
Means ...	...	...	5	58	27·60	+11·09	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.					
Group 1023. A small faint spot.									Group 1027—continued.								
1883. ^d May 6 ^h 43 ^m 0		0	8	0	8	359°0	—16°1	—59°5	1883. ^d May 19 ^h 51 ^m 4		48	251	44	229	299°9	—22°7	+54°4
											33	173	37	196	299°9	—22°1	+62°6
											9	67	26	183	299°7	—22°7	+79°3
Means ...		...	...	0	8	359°00	—16°10	...	Means ...		...	...	57	291	301°02	—22°29	...
Group 1024. Two small faint spots.									Group 1028. A large regular spot. Two or three small faint spots are occasionally seen in its neighbourhood.								
May 7 ^h 133		0	23	0	25	111°9	+13°4	+62°7	May 10 ^h 128		24	215	56	508	292°8	+11°0	—76°9
Means ...		...	...	0	25	111°90	+13°40	...	11 ^h 409		54	304	57	318	292°4	+11°0	—60°3
Group 1025. A regular spot, followed by a curved cluster of small spots. These latter spots form a straight line on May 9, and disappear before May 10.									12 ^h 162		53	305	43	246	292°7	+11°0	—50°0
May 8 ^h 143		34	179	19	95	38°1	+14°9	+2°2	13 ^h 517		83	518	51	314	292°5	+11°1	—32°3
9 ^h 141		32	233	18	129	38°4	+15°4	+15°8	14 ^h 161		70	484	39	271	292°2	+10°5	—24°0
10 ^h 128		4	25	3	15	40°8	+14°3	+31°1	15 ^h 427		40	258	21	134	292°3	+10°9	—7°3
11 ^h 409		0	24	0	20	40°6	+14°6	+47°9	16 ^h 489		70	351	37	182	292°5	+10°8	+7°0
Means ...		...	...	10	65	39°48	+14°80	...	17 ^h 406		83	304	45	166	292°2	+11°1	+18°9
Group 1026. A small spot.									18 ^h 460		37	257	23	158	292°3	+10°8	+32°8
May 9 ^h 141		0	5	0	13	303°0	—15°7	—79°6	19 ^h 514		37	243	28	183	292°3	+10°7	+46°8
10 ^h 128		0	12	0	15	303°6	—15°5	—66°1	20 ^h 132		25	156	23	141	292°4	+11°5	+55°1
11 ^h 409		0	17	0	13	303°2	—15°7	—49°5	21 ^h 407		20	69	35	117	292°5	+11°1	+72°1
12 ^h 162		7	13	5	9	303°4	—15°4	—39°3	Means ...		...	...	38	228	292°43	+10°96	...
13 ^h 517		3	14	1	8	302°9	—15°2	—21°9									
14 ^h 161		0	13	0	7	302°8	—15°3	—13°4									
Means ...		...	...	1	11	303°15	—15°47	...									
Group 1027. A large regular spot. A small spot is seen near it on May 11.									Group 1029. A small spot.								
May 9 ^h 141		43	147	119	403	302°6	—22°3	—80°0	May 12 ^h 162		2	11	2	10	285°9	+12°0	—56°8
10 ^h 128		35	205	46	270	302°5	—22°4	—67°2	Means ...		...	...	2	10	285°90	+12°00	...
11 ^h 409		75	408	62	337	301°8	—22°6	—50°9									
12 ^h 162		76	459	53	320	301°9	—22°3	—40°8									
13 ^h 517		93	660	53	380	301°3	—22°2	—23°5									
14 ^h 161		98	623	54	342	301°6	—22°2	—14°6									
15 ^h 427		147	553	79	295	301°0	—22°0	+1°4									
16 ^h 489		103	535	57	296	300°7	—22°0	+15°2									
17 ^h 406		103	475	62	284	300°4	—21°9	+27°1									
18 ^h 460		77	362	54	253	299°9	—22°4	+40°4									
									Group 1030. Two small spots. Only one of these is seen on May 15 and 16. The group increases in size very suddenly, and on May 17 consists of a regular spot with a smaller one following it.								
May 14 ^h 161		10	25	5	13	315°6	—15°0	—0°6	May 14 ^h 161		10	25	5	13	315°6	—15°0	—0°6
15 ^h 427		0	16	0	9	318°9	—14°4	+19°3	15 ^h 427		0	16	0	9	318°9	—14°4	+19°3
16 ^h 489		9	62	5	39	321°8	—14°2	+36°3	16 ^h 489		9	62	5	39	321°8	—14°2	+36°3
17 ^h 406		60	296	47	230	322°2	—14°6	+48°9	17 ^h 406		60	296	47	230	322°2	—14°6	+48°9
18 ^h 460		23	136	24	147	321°3	—15°2	+61°8	18 ^h 460		23	136	24	147	321°3	—15°2	+61°8
19 ^h 514		15	88	35	176	321°1	—15°2	+75°6	19 ^h 514		15	88	35	176	321°1	—15°2	+75°6
20 ^h 132		2	22	5	69	318°4	—14°8	+81°1	20 ^h 132		2	22	5	69	318°4	—14°8	+81°1
Means ...		...	...	17	98	319°90	—14°77	...	Means ...		...	...	17	98	319°90	—14°77	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1031. Three small faint spots.							
1883. _d May 15 ^h 42 ^m 7	0	91	0	48	318 ^o 1	— 5 ^o 4	+18 ^o 5
Means ...	...	...	0	48	318 ^o 1	— 5 ^o 4	...
Group 1032. A small spot. A second spot is seen near it on May 20. The two are measured together on May 21 and 22.							
May 17 ^h 40 ^m 6	0	24	0	20	224 ^o 5	+20 ^o 3	—48 ^o 8
18 ^h 46 ^m 0	0	21	0	14	225 ^o 9	+21 ^o 0	—33 ^o 6
19 ^h 51 ^m 4	0	20	0	11	227 ^o 5	+20 ^o 6	—18 ^o 0
20 ^h 13 ^m 2	0	52	0	29	222 ^o 5	+21 ^o 1	—14 ^o 8
21 ^h 40 ^m 7	0	24	0	13	225 ^o 2	+21 ^o 1	+ 4 ^o 8
22 ^h 40 ^m 4	0	12	0	7	225 ^o 8	+20 ^o 9	+18 ^o 6
Means ...	...	...	0	16	225 ^o 23	+20 ^o 83	...
Group 1033. Two small spots. The preceding spot disappears before May 20.							
May 19 ^h 51 ^m 4	13	49	8	32	281 ^o 8	—22 ^o 3	+36 ^o 3
20 ^h 13 ^m 2	6	53	4	40	281 ^o 8	—22 ^o 0	+44 ^o 5
Means ..	...	..	6	36	281 ^o 80	—22 ^o 15	...
Group 1034. A small spot.							
May 19 ^h 51 ^m 4	0	33	0	18	227 ^o 7	+16 ^o 0	—17 ^o 8
Means ...	...	...	0	18	227 ^o 70	+16 ^o 00	...
Group 1035. A small spot.							
May 23 ^h 40 ^m 1	3	25	2	14	224 ^o 1	— 5 ^o 9	+30 ^o 0
Means ...	...	...	2	14	224 ^o 10	— 5 ^o 90	...
Group 1036. Two small spots. The following spot disappears before May 24.							
May 23 ^h 40 ^m 1	15	85	8	46	212 ^o 9	+10 ^o 8	+18 ^o 8
24 ^h 50 ^m 4	0	15	0	10	214 ^o 6	+ 9 ^o 9	+35 ^o 2
Means ...	...	...	4	28	213 ^o 75	+10 ^o 35	...
Group 1037. A small spot on May 24. A second appears near it on May 25.							
1883. _d May 24 ^h 50 ^m 4	0	32	0	36	117 ^o 1	+12 ^o 8	—62 ^o 3
25 ^h 40 ^m 2	0	36	0	30	115 ^o 6	+13 ^o 3	—52 ^o 0
Means ...	...	...	0	33	116 ^o 35	+13 ^o 05	...
Group 1038. A small faint spot.							
May 29 ^h 41 ^m 2	0	8	0	9	49 ^o 2	+ 9 ^o 2	—65 ^o 3
Means ...	...	...	0	9	49 ^o 20	+ 9 ^o 20	...
Group 1039. Two spots. Several small spots are seen near the preceding spot on June 2-4. On June 7 small spots accompany the following spot. The following spot and its companions disappear before June 8, leaving the preceding spot alone.							
May 30 ^h 59 ^m 8	9	31	27	90	19 ^o 0	+14 ^o 5	—79 ^o 8
31 ^h 39 ^m 5	26	185	44	336	14 ^o 9	+14 ^o 0	—73 ^o 4
June 1 ^h 39 ^m 9	37	183	37	185	15 ^o 7	+14 ^o 2	—59 ^o 4
2 ^h 49 ^m 2	92	417	67	307	15 ^o 0	+14 ^o 4	—45 ^o 5
3 ^h 44 ^m 5	77	405	47	247	15 ^o 3	+14 ^o 4	—32 ^o 7
4 ^h 42 ^m 9	96	418	52	229	15 ^o 3	+14 ^o 3	—19 ^o 6
5 ^h 39 ^m 6	57	268	29	138	15 ^o 7	+14 ^o 1	— 6 ^o 4
6 ^h 40 ^m 0	63	239	32	123	15 ^o 3	+14 ^o 3	+ 6 ^o 5
7 ^h 13 ^m 8	27	184	15	101	16 ^o 0	+14 ^o 6	+17 ^o 0
8 ^h 58 ^m 2	33	56	22	36	17 ^o 5	+14 ^o 6	+37 ^o 5
9 ^h 42 ^m 6	26	76	20	58	16 ^o 9	+15 ^o 0	+48 ^o 1
10 ^h 14 ^m 9	15	42	14	41	17 ^o 5	+14 ^o 9	+58 ^o 3
11 ^h 14 ^m 4	0	16	0	26	17 ^o 3	+14 ^o 9	+71 ^o 3
Means ...	...	...	31	147	16 ^o 26	+14 ^o 48	...
Group 1040. A fine group breaking out suddenly on June 1 near the centre of the Sun. It consists at first of a large spot followed by an irregular group of small spots. The last of these develop on the following days into a large spot, showing much detail. The other small spots tend to coalesce, and on June 5 the group consists of five spots. Two of these disappear before June 6.							
June 1 ^h 39 ^m 9	67	300	34	151	70 ^o 4	— 6 ^o 4	— 4 ^o 7
2 ^h 49 ^m 2	267	1433	136	731	70 ^o 2	— 7 ^o 0	+ 9 ^o 7
3 ^h 44 ^m 5	251	1497	137	813	70 ^o 0	— 7 ^o 4	+22 ^o 0
4 ^h 42 ^m 9	256	1783	161	1098	70 ^o 0	— 7 ^o 6	+35 ^o 1
5 ^h 39 ^m 6	185	1222	139	919	70 ^o 3	— 8 ^o 4	+48 ^o 2
6 ^h 40 ^m 0	94	666	102	722	70 ^o 9	— 8 ^o 5	+62 ^o 1
7 ^h 13 ^m 8	28	303	56	494	70 ^o 8	— 8 ^o 8	+71 ^o 8
Means ...	...	...	109	704	70 ^o 37	— 7 ^o 73	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1041.							
A large spot of irregular shape. Several small spots follow it on June 4, and succeeding days. The group gradually diminishes in size, only one small spot remaining on June 8. This breaks up into yet smaller spots on June 9 and 10.							
1883. _d June					°	°	°
2 ^h 49 ^m 2	41	174	71	298	347 ^h 6	-10 ^h 7	-72 ^h 9
3 ^h 44 ^m 5	51	416	53	425	347 ^h 7	-10 ^h 6	-60 ^h 3
4 ^h 42 ^m 9	76	469	57	353	347 ^h 0	-10 ^h 4	-47 ^h 9
5 ^h 39 ^m 6	76	488	47	308	345 ^h 6	-11 ^h 1	-36 ^h 5
6 ^h 40 ^m 0	33	505	18	279	345 ^h 6	-10 ^h 9	-23 ^h 2
7 ^h 13 ^m 8	15	227	8	119	346 ^h 4	-10 ^h 8	-12 ^h 6
8 ^h 58 ^m 2	11	42	6	21	346 ^h 6	-10 ^h 8	+6 ^h 6
9 ^h 42 ^m 6	0	26	0	14	345 ^h 2	-11 ^h 3	+16 ^h 4
10 ^h 14 ^m 9	0	26	0	16	346 ^h 8	-11 ^h 4	+27 ^h 6
Means	...	...	29	204	346 ^h 50	-10 ^h 89	...
Group 1042.							
A small spot. A second is seen on June 5, and the following days. The group undergoes several slight changes, and the following spot disappears before June 9.							
June							
3 ^h 44 ^m 5	5	14	4	12	353 ^h 8	-8 ^h 3	-54 ^h 2
4 ^h 42 ^m 9	0	47	0	32	353 ^h 1	-7 ^h 8	-41 ^h 8
5 ^h 39 ^m 6	0	31	0	18	354 ^h 2	-7 ^h 9	-27 ^h 9
6 ^h 40 ^m 0	0	25	0	13	352 ^h 7	-8 ^h 1	-16 ^h 1
7 ^h 13 ^m 8	0	34	0	17	351 ^h 0	-9 ^h 6	-8 ^h 0
8 ^h 58 ^m 2	8	52	4	27	353 ^h 2	-8 ^h 0	+13 ^h 2
9 ^h 42 ^m 6	0	17	0	10	354 ^h 9	-7 ^h 5	+26 ^h 1
10 ^h 14 ^m 9	0	8	0	5	352 ^h 1	-8 ^h 6	+32 ^h 9
Means	...	...	1	17	353 ^h 13	-8 ^h 23	...
Group 1043.							
A small regular spot.							
June							
3 ^h 44 ^m 5	0	18	0	56	327 ^h 4	-16 ^h 5	-80 ^h 6
4 ^h 42 ^m 9	9	66	13	89	327 ^h 5	-16 ^h 2	-67 ^h 4
5 ^h 39 ^m 6	13	47	11	42	327 ^h 6	-16 ^h 5	-54 ^h 5
6 ^h 40 ^m 0	37	95	26	66	327 ^h 0	-16 ^h 2	-41 ^h 8
7 ^h 13 ^m 8	22	81	14	50	326 ^h 9	-16 ^h 2	-32 ^h 1
8 ^h 58 ^m 2	27	60	14	32	327 ^h 0	-16 ^h 2	-13 ^h 0
9 ^h 42 ^m 6	0	16	0	8	327 ^h 1	-16 ^h 3	-1 ^h 7
10 ^h 14 ^m 9	2	17	1	9	326 ^h 9	-16 ^h 6	+7 ^h 7
11 ^h 14 ^m 4	5	16	3	9	326 ^h 7	-16 ^h 7	+20 ^h 7
Means	...	...	9	40	327 ^h 12	-16 ^h 38	...
Group 1044.							
Three spots close together.							
June							
4 ^h 42 ^m 9	33	164	37	188	97 ^h 9	+15 ^h 7	+63 ^h 0
5 ^h 39 ^m 6	0	33	0	68	97 ^h 6	+15 ^h 2	+75 ^h 5
Means	...	...	19	128	97 ^h 75	+15 ^h 45	...
Group 1045.							
A small faint spot on June 4. Several other spots appear following it on June 5.							
1883. _d June					°	°	°
4 ^h 42 ^m 9	0	9	0	5	14 ^h 3	-11 ^h 7	-20 ^h 6
5 ^h 39 ^m 6	9	110	5	57	14 ^h 1	-11 ^h 5	-8 ^h 0
6 ^h 40 ^m 0	0	99	0	50	14 ^h 1	-11 ^h 4	+5 ^h 3
7 ^h 13 ^m 8	22	132	12	70	14 ^h 3	-11 ^h 5	+15 ^h 3
8 ^h 58 ^m 2	36	266	22	165	14 ^h 7	-11 ^h 8	+34 ^h 7
9 ^h 42 ^m 6	0	48	0	37	17 ^h 6	-10 ^h 9	+48 ^h 8
10 ^h 14 ^m 9	7	37	7	38	18 ^h 9	-11 ^h 1	+59 ^h 7
11 ^h 14 ^m 4	0	40	0	58	15 ^h 1	-11 ^h 7	+69 ^h 1
Means	...	...	6	60	15 ^h 39	-11 ^h 45	...
Group 1046.							
A large spot of irregular outline. It undergoes many changes both in shape and size during the period of its appearance.							
June							
6 ^h 40 ^m 0	0	116	0	229	294 ^h 6	-23 ^h 1	-74 ^h 2
7 ^h 13 ^m 8	17	245	21	306	295 ^h 0	-23 ^h 3	-64 ^h 0
8 ^h 58 ^m 2	68	474	51	362	295 ^h 2	-22 ^h 6	-44 ^h 8
9 ^h 42 ^m 6	39	507	25	331	294 ^h 9	-22 ^h 8	-33 ^h 9
10 ^h 14 ^m 9	23	335	14	203	294 ^h 7	-23 ^h 2	-24 ^h 5
11 ^h 14 ^m 4	19	365	10	202	294 ^h 6	-22 ^h 7	-11 ^h 4
12 ^h 53 ^m 7	37	514	20	281	294 ^h 6	-22 ^h 8	+7 ^h 0
13 ^h 40 ^m 7	73	930	42	537	294 ^h 3	-23 ^h 7	+18 ^h 3
14 ^h 48 ^m 2	125	1095	81	713	294 ^h 4	-23 ^h 7	+32 ^h 5
15 ^h 35 ^m 9	52	844	39	641	293 ^h 8	-23 ^h 5	+43 ^h 6
16 ^h 52 ^m 3	60	635	65	690	293 ^h 7	-23 ^h 9	+58 ^h 9
17 ^h 41 ^m 3	60	557	102	940	293 ^h 4	-23 ^h 6	+70 ^h 4
Means	...	...	39	453	294 ^h 43	-23 ^h 24	...
Group 1047.							
A small spot.							
June							
7 ^h 13 ^m 8	1	18	1	22	64 ^h 2	+17 ^h 4	+65 ^h 2
Means	...	...	1	22	64 ^h 2	+17 ^h 4	...
Group 1048.							
Two small spots.							
June							
7 ^h 13 ^m 8	18	131	9	66	352 ^h 2	+7 ^h 3	-6 ^h 8
8 ^h 58 ^m 2	45	152	22	78	352 ^h 4	+6 ^h 9	+12 ^h 4
9 ^h 42 ^m 6	0	58	0	32	351 ^h 9	+6 ^h 9	+23 ^h 1
10 ^h 14 ^m 9	2	27	1	16	353 ^h 2	+7 ^h 1	+34 ^h 0
Means	...	...	8	48	352 ^h 43	+7 ^h 05	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1049. A small regular spot followed by some smaller spots.								Group 1053. Two small spots.							
1883. _a					°	°	°	1883. _a					°	°	°
June 11 ¹⁴ 44	5	37	6	48	240°9	-24°2	-65°1	June 17 ⁴¹ 13	0	17	0	15	168°2	+4°7	-54°8
12 ⁵³ 37	50	210	40	169	240°9	-24°3	-46°7	18 ⁵⁵ 54	0	22	0	14	168°3	+5°0	-39°6
13 ⁴⁰ 07	28	168	19	113	240°8	-24°6	-35°2	19 ²⁰ 1	6	33	3	18	168°6	+5°4	-30°7
14 ⁴⁸ 2	33	121	19	72	240°3	-24°4	-21°6	20 ⁵⁹ 3	3	27	2	14	169°7	+5°1	-11°3
15 ³⁵ 9	14	57	8	32	240°3	-24°6	-9°9								
16 ⁵² 3	0	18	0	10	240°6	-24°5	+5°8								
Means ...	...	...	15	74	240°63	-24°43	...	Means ...	...	...	1	15	168°70	+5°05	...
Group 1050. A small faint spot.								Group 1054. A fine regular spot followed by a great number of small spots. The group under- goes many changes.							
June 13 ⁴⁰ 7	0	20	0	11	256°9	-8°2	-19°1	June 17 ⁴¹ 13	9	41	19	93	146°8	-16°2	-76°2
Means ...	...	...	0	11	256°9	-8°2	...	18 ⁵⁵ 54	33	218	39	257	144°5	-14°3	-63°4
Group 1051. A regular spot followed by several very small faint spots on June 15, which dis- appear before June 16.								19 ²⁰ 1	21	251	19	239	142°8	-14°9	-56°5
June 13 ⁴⁰ 7	9	52	20	111	199°9	+20°9	-76°1	20 ⁵⁹ 3	92	545	61	361	143°9	-15°7	-37°1
14 ⁴⁸ 2	17	99	18	106	201°2	+20°6	-60°7	21 ⁴³ 5	99	700	58	409	144°9	-16°7	-24°8
15 ³⁵ 9	9	97	7	82	199°8	+21°4	-50°4	22 ²² 6	62	617	34	337	145°3	-16°4	-14°0
16 ⁵² 3	9	28	6	18	200°5	+20°9	-34°3	23 ³⁸ 9	102	590	54	311	143°9	-16°0	+0°0
17 ⁴¹ 3	9	13	5	7	200°2	+20°7	-22°8	24 ¹⁷ 9	38	428	20	229	143°9	-15°9	+10°5
18 ⁵⁵ 4	5	26	3	14	199°6	+21°2	-8°3	25 ⁵⁵ 4	46	500	28	302	143°6	-16°4	+28°4
Means ...	...	...	10	56	200°20	+20°95	...	26 ³⁹ 3	46	317	32	217	143°3	-15°6	+39°2
Group 1052. Two small spots on June 17. These have greatly increased in size by June 18. On June 19 they form two lines each composed of a great number of spots, the first spot in each line being the largest. The following spots in each line are measured as one cluster on June 19-21, but are divided into two clusters on June 22. The following portion of the more northerly line disappears before June 23. The individual spots of the whole group show large proper motion.								27 ⁴³ 9	10	98	9	87	143°6	-15°7	+53°3
June 17 ⁴¹ 13	10	41	6	24	212°3	-25°6	-10°7	28 ³⁷ 2	4	25	5	31	142°9	-16°2	+64°9
18 ⁵⁵ 4	159	867	90	487	211°8	-24°6	+3°9	Means ...	...	...	32	239	144°12	-15°83	...
19 ²⁰ 1	84	821	48	469	212°2	-24°3	+12°9	Group 1055. A small faint spot.							
20 ⁵⁹ 3	186	1172	122	781	213°2	-24°1	+32°2	June 19 ²⁰ 1	1	14	1	14	259°4	-15°4	+60°1
21 ⁴³ 5	213	952	163	740	213°4	-23°9	+43°7	Means ...	...	...	1	14	259°4	-15°4	...
22 ²² 6	58	531	58	528	214°4	-24°8	+55°1	Group 1056. An irregular group, first seen on June 20 not far from the centre of the Sun. It rapidly increases in size on the following days, the smaller spots of the group disappearing or coalescing with the larger spots, so that on June 23 and the following days the group consists almost entirely of three large regular spots.							
23 ³⁸ 9	20	167	39	319	215°4	-24°6	+71°5	June 20 ⁵⁹ 3	77	296	40	155	168°8	-10°6	-12°2
24 ¹⁷ 9	0	41	0	142	213°5	-23°3	+80°1	21 ⁴³ 5	176	874	91	449	169°7	-10°4	-0°0
Means ...	...	...	66	436	213°28	-24°40	...	22 ²² 6	185	1574	96	822	169°5	-10°5	+10°2
								23 ³⁸ 9	333	1935	189	1104	169°2	-10°3	+25°3
								24 ¹⁷ 9	142	1330	92	856	169°9	-10°1	+36°5
								25 ⁵⁵ 4	182	915	175	855	171°4	-10°2	+56°2
								26 ³⁹ 3	71	373	92	484	170°5	-9°6	+66°4
								27 ⁴³ 9	0	116	0	457	172°5	-10°0	+82°2
								Means ...	...	...	97	648	170°19	-10°21	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1057.							
A small regular spot.							
1883. ^a June 21.435	9	46	5	25	166.2	-19.3	- 3.5
Means ...	...	...	5	25	166.2	-19.3	...
Group 1058.							
A very fine large spot with a great number of small spots preceding it. The large spot is very irregular in outline, is crossed by bridges in various directions, and has a large number of separate nuclei. It undergoes many changes, and breaks up into a number of small spots after passing the central meridian on June 28.							
June 22.226	2	9	5	18	84.1	- 8.5	-75.2
23.389	40	330	62	516	73.3	- 9.6	-70.6
24.179	51	572	53	586	73.5	- 9.5	-59.9
25.554	135	1124	94	782	73.0	- 9.8	-42.2
26.393	167	1585	100	953	73.2	-10.0	-30.9
27.439	316	1919	169	1031	73.5	- 9.7	-16.8
28.372	299	1992	154	1025	73.5	- 9.4	- 4.5
29.415	307	1571	159	820	74.1	- 9.3	+ 9.9
30.396	171	1195	97	673	75.0	- 9.3	+23.9
July 1.431	115	703	76	460	75.3	- 9.5	+37.8
2.148	52	602	42	470	76.4	- 9.8	+48.4
3.164	37	300	41	329	76.3	-10.4	+61.7
4.506	25	139	50	275	71.2	-11.5	+74.4
Means ...	...	...	85	611	74.80	- 9.72	...
Group 1059.							
Four small faint spots in a straight line.							
June 24.179	0	21	0	10	120.0	+10.2	-13.4
Means ...	...	...	0	10	120.0	+10.2	...
Group 1060.							
Three small spots. The photograph of June 25 is badly defined, being taken through cloud.							
June 25.554	9	34	4	18	109.3	+13.8	- 5.9
Means ...	...	...	4	18	109.3	+13.8	...
Group 1061.							
Two small spots. The following spot disappears before June 27, and another small spot is seen on that day.							
1883. ^a June 25.554	0	31	0	32	54.3	+ 6.2	-60.9
26.393	2	32	1	24	55.4	+ 5.9	-48.7
27.439	7	59	4	36	55.3	+ 5.7	-35.0
28.372	0	20	0	11	55.8	+ 6.6	-22.2
Means ...	...	...	1	26	55.20	+ 6.10	...
Group 1062.							
Two very fine spots when first seen on June 25. A third appears on June 27. The three spots tend to coalesce on the following days, and form one magnificent spot on June 29. By July 1 this has broken up to form two large spots and several smaller spots. The large spots break up further on the following days.							
June 25.554	63	291	137	751	36.1	+ 9.6	-79.1
26.393	106	713	143	972	35.6	+ 9.0	-68.5
27.439	257	1555	209	1227	34.5	+ 9.7	-55.8
28.372	327	2190	223	1505	35.4	+10.6	-42.6
29.415	581	3014	334	1733	35.8	+10.4	-28.4
30.396	646	3573	339	1876	35.3	+10.9	-15.8
July 1.431	610	3131	309	1589	35.8	+10.9	- 1.7
2.148	385	2948	197	1510	36.4	+10.7	+ 8.4
3.164	427	2809	233	1532	36.8	+10.9	+22.2
4.506	411	2274	272	1503	36.9	+11.0	+40.1
5.393	294	1617	240	1323	37.1	+11.4	+52.0
6.418	164	914	203	1129	37.6	+10.9	+66.2
7.531	0	336	0	939	37.0	+10.4	+80.3
Means ...	...	...	218	1353	36.18	+10.49	...
Group 1063.							
A small spot.							
June 27.439	0	7	0	10	160.7	-16.2	+70.4
Means ...	...	...	0	10	160.7	-16.2	...
Group 1064.							
Three small spots on June 27. The group increases in size very rapidly on the following days, and entirely changes in appearance. It consists of two spots with a few small spots near them on June 28 and 29. Only one large spot is seen on June 30.							
June 27.439	0	44	0	28	125.0	-10.8	+34.7
28.372	33	202	25	153	125.0	-10.0	+47.1
29.415	69	360	77	397	126.2	- 9.0	+62.0
30.396	20	138	48	331	128.5	- 8.8	+77.4
Means ...	...	...	38	227	126.18	- 9.65	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 1065.							
Several small spots arranged in two compact clusters.							
1883. _a					°	°	°
June 29.415	47	145	24	74	76.1	+ 5.0	+11.9
30.396	88	390	48	216	76.0	+ 5.5	+24.9
July 1.431	42	278	28	180	76.6	+ 5.6	+39.1
2.148	30	277	24	211	76.8	+ 5.8	+48.8
3.164	8	154	11	172	78.4	+ 5.5	+63.8
Means ...	...	...	27	171	76.78	+ 5.48	...
Group 1066.							
Two spots which are measured together on July 3 and 4. A small spot is seen near them on July 5. The spots coalesce and form one long irregular spot on July 6 and 7, which, for the sake of convenience, is measured in two portions. This spot breaks up on the following days, and the group rapidly diminishes in size after July 11.							
July 3.164	0	73	0	445	291.0	-22.4	-83.6
4.506	65	443	89	608	291.4	-22.0	-65.4
5.393	117	611	111	582	291.8	-22.6	-53.3
6.418	148	756	109	564	290.3	-22.5	-41.1
7.531	147	1137	92	711	290.2	-22.0	-26.5
8	No photograph.		(82)	630	290.5	-22.2	-12.7
9.581	127	982	72	551	290.8	-22.4	+ 1.1
10.394	140	906	80	519	290.3	-22.6	+11.5
11.525	83	648	52	408	289.5	-23.3	+25.6
12.294	46	331	31	235	290.1	-23.2	+36.4
13.400	28	159	26	142	289.1	-22.9	+50.0
Means ...	...	...	68	490	290.45	-22.55	...
Group 1067.							
A very large spot. A number of small spots appear in its neighbourhood from time to time. The group diminishes rapidly after passing the central meridian on July 14, and breaks up into three portions before July 19.							
July 9.581	24	219	62	566	214.2	-26.2	-75.5
10.394	90	486	133	718	213.3	-26.2	-65.5
11.525	158	806	148	755	212.9	-25.7	-51.0
12.294	69	961	53	751	212.5	-26.1	-41.2
13.400	121	1210	79	792	212.0	-26.1	-27.1
14	No photograph.		(92)	679	211.8	-26.0	-13.6
15.478	181	974	105	566	211.5	-25.9	-0.1
16.153	51	659	30	389	210.8	-26.1	+ 8.2
17	No photograph.		(33)	330	210.8	-26.0	+23.3
18	No photograph.		(36)	270	210.7	-25.9	+38.4
19.586	40	210	39	211	210.7	-25.8	+53.5
20.150	24	162	30	203	210.5	-26.6	+60.7
21.497	0	58	0	183	209.0	-25.8	+77.1
Means ...	...	...	65	493	211.59	-26.03	...
Group 1068.							
Two spots on July 10. The group increases rapidly and forms a long line of spots on July 12, the first spot being the largest. The group diminishes rapidly after passing the central meridian, the following part of the group disappearing first. The preceding spot shows a rapid forward movement in longitude.							
1883. _a					°	°	°
July 10.394	5	93	6	107	216.1	-11.0	-62.7
11.525	76	452	57	341	217.5	-9.8	-46.4
12.294	68	583	43	371	218.3	-10.3	-35.4
13.400	83	552	45	303	220.4	-10.0	-18.7
14	No photograph.		(41)	303	222.5	-10.0	-2.9
15.478	70	567	37	302	224.6	-9.9	+13.0
16.153	34	360	20	204	225.7	-10.0	+23.1
17	No photograph.		(13)	155	226.9	-9.6	+39.5
18	No photograph.		(7)	105	228.2	-9.1	+55.8
19.586	0	33	0	56	229.4	-8.7	+72.2
20.150	2	9	5	31	230.1	-9.3	+80.3
Means ...	...	...	25	207	223.61	-9.79	...
Group 1069.							
Two very small spots.							
July 11.525	0	31	0	22	305.6	-13.6	+41.7
Means ...	...	...	0	22	305.6	-13.6	...
Group 1070.							
Three small spots. The first two spots are measured together on July 11, 12, and 13. On July 13 the following spot has disappeared, but three spots are again seen on July 14. The group shows considerable proper motion.							
July 11.525	0	56	0	72	196.4	+11.9	-67.5
12.294	10	120	8	105	198.4	+10.7	-55.3
13.400	52	201	33	128	200.8	+10.3	-38.3
14	No photograph.		(28)	100	201.9	+10.6	-23.5
15.478	43	138	22	71	202.9	+10.8	-8.7
16.153	17	60	8	31	203.6	+11.0	+ 1.0
Means ...	...	...	17	85	200.67	+10.88	...
Group 1071.							
A regular spot. Some small spots appear in its immediate neighbourhood on July 16. These increase in size and number on the following days.							
July 12.294	17	95	45	251	175.6	-11.0	-78.1
13.400	57	330	66	382	176.3	-11.3	-62.8
14	No photograph.		(75)	365	176.4	-11.2	-49.0
15.478	132	542	84	347	176.4	-11.1	-35.2
16.153	99	545	57	317	176.1	-11.1	-26.5
17	No photograph.		(65)	354	176.4	-11.0	-11.1
18	No photograph.		(72)	392	176.7	-10.8	+ 4.3
19.586	146	779	80	429	177.0	-10.7	+19.8
20.150	95	759	55	446	177.5	-10.9	+27.7
21.497	58	519	42	383	176.6	-10.4	+44.7
Means ...	...	...	64	367	176.50	-10.95	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1072.								Group 1075—continued.							
A great number of very small spots irregularly distributed over a somewhat wide area.								1883. ^a							
July 13 ⁴⁰⁰	24	197	13	104	230°9	+19°7	— 8°2	July 19 ⁵⁸⁶	54	333	28	171	155°0	—10°6	— 2°2
14	No photograph.	(20	100	230°5	+19°7	+ 5°2)		20°150	32	287	16	150	155°5	—10°7	+ 5°7
15 ⁴⁷⁸	45	175	24	96	230°1	+19°7	+18°5	21°497	59	200	34	114	155°5	—10°0	+23°6
16°153	18	134	10	79	231°3	+19°5	+28°7	22	No photograph.	(28	96	155°7	—10°4	+36°6)	
								23	No photograph.	(22	78	156°0	—10°7	+49°6)	
								24°394	14	52	16	60	156°2	—11°1	+62°6
Means ...	...	...	17	95	230°70	+19°65	...	Means ...	...	...	22	100	154°86	—10°50	...
Group 1073.								Group 1076.							
Several very small spots in a straight line. On July 19 the following spots have disappeared and the preceding spots have increased in size. These coalesce on the following days, forming a nearly circular spot on July 21.								A small faint spot.							
July 15 ⁴⁷⁸	0	52	0	36	169°2	+ 8°2	—42°4	July 19 ⁵⁸⁶	4	25	3	17	197°3	—11°7	+40°1
16°153	0	27	0	16	171°2	+ 8°6	—31°4	20°150	1	7	1	5	198°1	—12°2	+48°3
17	No photograph.	(3	32	171°6	+ 8°8	—15°9)		Means ...	...	...	2	11	197°70	—11°95	...
18	No photograph.	(6	47	172°0	+ 9°0	— 0°3)									
19°586	18	123	9	63	172°4	+ 9°2	+15°2								
20°150	17	101	9	55	174°7	+ 8°6	+24°9								
21°497	24	135	17	95	176°4	+ 8°4	+44°5								
Means ...	...	...	6	49	172°50	+8°69	...								
Group 1074.								Group 1077.							
A very fine group of spots, consisting chiefly of a large and nearly circular spot followed at a little interval by a large cluster of spots arranged in a roughly circular manner. These latter spots have greatly decreased in size by July 25, but by July 26 a number of other small spots have formed in their neighbourhood.								A small faint spot.							
July 15 ⁴⁷⁸	0	84	0	219	134°4	—15°0	—77°2	July 19°586	0	26	0	17	193°5	—14°4	+36°3
16°153	29	293	53	547	130°0	—14°7	—72°6	20°150	0	5	0	4	193°7	—15°1	+43°9
17	No photograph.	(89	683	130°6	—14°8	—56°9)		Means ...	...	...	0	11	193°60	—14°75	...
18	No photograph.	(125	819	131°1	—15°0	—41°2)									
19°586	277	1635	161	955	131°7	—15°1	—25°5								
20°150	176	1468	97	823	133°0	—15°4	—16°8								
21°497	205	1350	110	724	133°6	—14°7	+ 1°7								
22	No photograph.	(119	790	134°0	—15°0	+14°9)									
23	No photograph.	(128	855	134°4	—15°2	+28°0)									
24°394	188	1287	137	921	134°8	—15°5	+41°2								
25°561	111	844	117	876	136°4	—15°7	+58°2								
26°405	37	393	60	581	134°7	—15°8	+67°7								
27°444	0	80	0	333	134°5	—16°0	+81°2								
Means ...	...	...	92	702	133°32	—15°22	...								
Group 1075.								Group 1078.							
Several small spots. The preceding spot increases in size on the following days, and becomes circular in shape; the other spots diminish and gradually disappear.								A small faint spot.							
July 16°153	8	38	7	30	152°4	—10°2	—50°2	July 19°586	84	508	67	406	109°4	—15°7	—47°8
17	No photograph.	(21	77	153°3	—10°3	—34°2)		20°150	54	343	38	242	109°4	—15°6	—40°4
18	No photograph.	(24	124	154°1	—10°5	—18°2)		21°497	41	353	23	205	110°0	—15°2	—21°9
								22	No photograph.	(28	186	110°5	—15°3	— 8°7)	
								23	No photograph.	(32	166	110°9	—15°3	+ 4°6)	
								24°394	58	261	37	147	111°4	—15°4	+17°8
								25°561	23	196	15	126	111°5	—15°9	+33°3
								26°405	21	80	16	61	111°7	—15°9	+44°7
								27°444	9	33	9	34	111°8	—16°2	+58°5
								28°400	0	24	0	42	111°5	—16°2	+70°9
Means ...	...	...	27	162	110°81	—15°67	...	Means ...	...	...	27	162	110°81	—15°67	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1080.							
A very fine group consisting of a very large spot showing much intricate detail, with a great number of small spots preceding it. These small spots, which are irregularly distributed over an extensive area, diminish greatly between July 28 and 29. The large spot is somewhat indistinctly seen on July 31, as it is then close to the limb, but it appears to have broken up into several parts.							
1883. ^d					°	°	°
July 19 ^h 58 ^m 6 ^s	0	155	0	589	75.7	-9.3	-81.5
20 ^h 15 ^m 0 ^s	27	641	57	1365	74.5	-9.1	-75.3
21 ^h 49 ^m 7 ^s	233	1561	230	1508	74.7	-9.0	-57.2
22	No photograph.	(235	1553	74.5	-8.9	-44.6)	
23	No photograph.	(240	1597	74.3	-8.8	-32.1)	
24 ^h 39 ^m 4 ^s	447	3013	245	1642	74.1	-8.7	-19.5
25 ^h 56 ^m 1 ^s	554	3115	286	1606	73.4	-8.9	-4.8
26 ^h 40 ^m 5 ^s	408	1967	212	1021	73.2	-9.5	+6.2
27 ^h 44 ^m 4 ^s	470	2495	257	1374	73.1	-9.9	+19.8
28 ^h 40 ^m 0 ^s	396	2252	243	1388	73.2	-9.8	+32.6
29 ^h 44 ^m 9 ^s	266	1461	198	1092	72.7	-9.8	+45.9
30	No photograph.	(176	1360	73.3	-10.6	+60.0)	
31 ^h 47 ^m 5 ^s	90	814	154	1627	73.9	-11.3	+74.0
Means ...	...	...	195	1363	73.89	-9.51	...
Group 1081.							
A small faint spot.							
July 20 ^h 15 ^m 0 ^s	2	10	3	14	218.7	-2.8	+68.9
Means ...	...	...	3	14	218.7	-2.8	...
Group 1082.							
A very small faint spot.							
July 20 ^h 15 ^m 0 ^s	0	2	0	1	186.3	+5.2	+36.5
Means ...	...	...	0	1	186.3	+5.2	...
Group 1083.							
Several very small faint spots close together.							
July 20 ^h 15 ^m 0 ^s	0	8	0	7	95.6	+5.7	-54.2
21 ^h 49 ^m 7 ^s	0	17	0	11	96.5	+5.6	-35.4
22	No photograph.	(0	12	96.3	+5.3	-22.8)	
23	No photograph.	(1	13	96.2	+5.1	-10.3)	
24 ^h 39 ^m 4 ^s	2	27	1	13	95.9	+4.8	+2.3
Means ...	...	...	0	11	96.10	+5.30	...
Group 1084.							
An irregular group composed of three or four spots. The group diminishes in size on July 24, and the following days.							
1883. ^d					°	°	°
July 20 ^h 15 ^m 0 ^s	6	45	17	136	68.6	+8.2	-81.2
21 ^h 49 ^m 7 ^s	18	163	20	181	68.5	+8.3	-63.4
22	No photograph.	(19	152	68.3	+8.6	-50.9)	
23	No photograph.	(19	122	68.0	+9.0	-38.3)	
24 ^h 39 ^m 4 ^s	33	168	18	93	67.8	+9.3	-25.8
25 ^h 56 ^m 1 ^s	12	76	6	39	69.0	+9.8	-9.2
26 ^h 40 ^m 5 ^s	0	33	0	16	68.7	+9.5	+1.7
Means ...	...	...	14	106	68.41	+8.96	...
Group 1085.							
Several very small spots, somewhat scattered.							
July 24 ^h 39 ^m 4 ^s	3	20	1	11	65.0	+18.7	-28.6
25 ^h 56 ^m 1 ^s	9	59	4	31	65.6	+18.1	-12.6
Means ...	...	...	3	21	65.30	+18.40	...
Group 1086.							
A regular spot. Two very small faint spots are seen near it on July 27.							
July 24 ^h 39 ^m 4 ^s	40	210	32	168	41.9	+9.3	-51.7
25 ^h 56 ^m 1 ^s	34	228	21	141	41.7	+9.1	-36.5
26 ^h 40 ^m 5 ^s	41	217	23	120	41.7	+8.9	-25.3
27 ^h 44 ^m 4 ^s	53	269	27	137	41.9	+9.1	-11.4
28 ^h 40 ^m 0 ^s	51	267	26	133	41.9	+8.9	+1.3
29 ^h 44 ^m 9 ^s	41	217	21	112	42.3	+9.1	+15.5
30	No photograph.	(20	98	42.3	+9.2	+28.9)	
31 ^h 47 ^m 5 ^s	27	125	18	84	42.2	+9.3	+42.3
Aug. 1 ^h 40 ^m 7 ^s	15	105	13	90	42.5	+9.3	+54.9
2 ^h 21 ^m 1 ^s	7	49	9	60	43.3	+9.6	+66.3
Means ...	...	...	21	114	42.17	+9.18	...
Group 1087.							
A small spot. A very small spot precedes it on July 26. Another small spot follows it on July 27.							
July 24 ^h 39 ^m 4 ^s	0	16	0	23	25.9	-10.0	-67.7
25 ^h 56 ^m 1 ^s	9	29	8	24	26.8	-10.6	-51.4
26 ^h 40 ^m 5 ^s	0	20	0	13	27.8	-9.9	-39.2
27 ^h 44 ^m 4 ^s	12	40	7	24	27.2	-10.7	-26.1
28 ^h 40 ^m 0 ^s	9	17	5	9	29.1	-10.0	-11.5
29 ^h 44 ^m 9 ^s	0	17	0	9	30.2	-10.0	+3.4
Means ...	...	...	3	17	27.83	-10.20	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 1088. Two very small faint spots.								Group 1093. A small faint spot. A second is seen at a little distance from it on August 8.							
1883. _a July 31 ⁴⁷⁵	0	33	0	17	6.7	+ 5.6	+ 6.8	1883. _a Aug. 7 ⁴²⁴ 8 ²⁹⁸	0 0	21 35	0 0	53 52	188.2 185.3	+ 10.4 + 8.9	- 79.8 - 71.2
Means ...	...	...	0	17	6.7	+ 5.6	...	Means ...	...	...	0	53	186.75	+ 9.65	...
Group 1089. Two spots of nearly equal size. The preceding spot breaks up into several portions on August 1, and both spots diminish in size on August 2 and 3, the following spot more rapidly than the preceding.								Group 1094. A regular spot with two smaller spots to the south of it. The latter disappear before August 12. The three spots are measured as one on August 8. Some very small spots are occasionally seen in the neighbourhood of the principal spot.							
July 31 ⁴⁷⁵	89	420	49	231	343.4	- 13.5	- 16.5	Aug. 8 ²⁹⁸	16	119	46	345	177.9	- 11.4	- 78.6
Aug. 1 ⁴⁰⁷	69	458	37	243	343.1	- 13.5	- 4.5	9 ⁴²¹	31	259	37	313	178.4	- 11.3	- 63.4
2 ²¹¹	32	229	17	123	344.3	- 13.4	+ 7.3	10 ³⁹¹	30	466	25	391	178.3	- 11.3	- 50.6
3 ⁵⁶⁴	20	91	12	54	344.7	- 13.5	+ 25.6	11 ⁴³¹	56	353	36	232	178.3	- 10.7	- 36.8
Means ...	...	...	29	163	343.88	- 13.48	...	12 ⁴⁶¹	70	401	40	229	178.1	- 10.2	- 23.4
Group 1090. Three small spots.								13 ³⁸⁹	70	388	37	207	177.9	- 10.2	- 11.3
Aug. 7 ⁴²⁴	11	54	7	33	298.1	- 14.7	+ 30.1	14 ³⁹¹	88	436	46	227	177.6	- 10.1	+ 1.7
Means ...	...	...	7	33	298.1	- 14.7	...	15 ⁴⁴²	62	372	34	203	177.7	- 10.2	+ 15.6
Group 1091. A small regular spot. Two small faint spots are seen near it on August 8.								16 ⁴⁸⁹	77	324	46	195	177.9	- 9.8	+ 29.6
Aug. 7 ⁴²⁴	29	112	18	71	230.4	+ 15.6	- 37.6	17 ¹³³	37	298	25	199	178.4	- 9.3	+ 38.7
8 ²⁹⁸	10	77	5	42	230.3	+ 15.5	- 26.2	18 ⁴⁴²	48	223	44	208	177.6	- 9.6	+ 55.1
9 ⁴²¹	0	29	0	15	230.5	+ 15.1	- 11.3	19 ³⁷⁹	4	90	6	127	177.8	- 9.7	+ 67.7
Means ...	...	...	8	43	230.40	+ 15.40	...	20 ⁴¹⁰	0	17	0	65	177.6	- 9.5	+ 81.2
Group 1092. Several small faint spots. The components of this group are very unstable.								Means ...	...	...	32	226	177.96	- 10.25	...
Aug. 7 ⁴²⁴	0	4	0	7	198.4	- 16.5	- 69.6	Group 1095. Two small regular spots. The two spots tend to separate on August 10, 11, and 12, and the following spot disappears before August 16. A number of very small faint spots are seen near them on August 11 and 12.							
8 ²⁹⁸	0	67	0	75	196.6	- 16.5	- 59.9	Aug. 10 ³⁹¹	9	83	9	79	169.9	+ 11.1	- 59.0
9 ⁴²¹	0	27	0	21	196.2	- 17.4	- 45.6	11 ⁴³¹	58	274	40	191	170.5	+ 11.0	- 44.6
10 ³⁹¹	0	12	0	8	193.2	- 17.8	- 35.7	12 ⁴⁶¹	52	295	30	171	171.1	+ 11.0	- 30.4
11 ⁴³¹	0	15	0	8	194.8	- 14.4	- 20.3	13 ³⁸⁹	50	284	27	151	170.4	+ 11.5	- 18.8
12 ⁴⁶¹	34	130	19	72	192.3	- 17.4	- 9.2	14 ³⁹¹	34	161	17	81	170.2	+ 11.6	- 5.7
13 ³⁸⁹	19	146	10	80	193.7	- 17.3	+ 4.5	15 ⁴⁴²	4	57	2	29	171.6	+ 11.6	+ 9.5
14 ³⁹¹	0	84	0	48	192.8	- 17.6	+ 16.9	16 ⁴⁸⁹	9	35	5	20	176.4	+ 11.6	+ 28.1
15 ⁴⁴²	0	6	0	4	192.1	- 17.5	+ 30.0	17 ¹³³	8	31	5	19	176.6	+ 11.5	+ 36.9
Means ...	...	...	3	36	194.46	- 16.93	...	18 ⁴⁴²	0	22	0	19	176.7	+ 11.3	+ 54.2
Group 1096. A small faint spot.								Means ...	...	...	15	84	172.60	+ 11.36	...
Aug. 11 ⁴³¹	0	15	0	21	148.0	- 13.0	- 67.1	Group 1096. A small faint spot.							
Means ...	...	...	0	21	148.0	- 13.0	...	Aug. 11 ⁴³¹	0	15	0	21	148.0	- 13.0	- 67.1
								Means ...	...	...	0	21	148.0	- 13.0	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1097.							
Two spots.							
1883. _a Aug. 14 ³⁹ 1	0	118	0	362	253.4	-16.5	+77.5
Means ...	...	...	0	362	253.4	-16.5	...
Group 1098.							
A regular spot. A very small spot is seen near it on August 16, and another on August 22.							
Aug. 15 ⁴⁴ 2	18	47	36	95	89.2	-16.5	-72.9
16 ⁴⁸ 9	20	115	22	127	89.1	-16.5	-59.2
17 ¹³ 3	12	128	11	112	89.2	-16.3	-50.5
18 ⁴⁴ 2	55	273	36	179	89.2	-16.3	-33.3
19 ³⁷ 9	47	268	25	142	89.3	-16.5	-20.8
20 ⁴¹ 0	51	243	28	134	89.4	-16.6	-7.0
21 ⁴⁰ 9	34	250	19	138	89.3	-16.4	+6.0
22 ⁴¹ 1	28	237	16	138	89.4	-16.7	+19.4
23 ⁴¹ 8	38	204	25	132	89.1	-16.5	+32.4
24 ⁴² 3	20	134	16	106	89.0	-16.5	+45.6
25 ⁴³ 0	15	62	16	67	88.6	-16.3	+58.6
26 ⁴⁶ 5	3	38	6	70	87.7	-15.9	+71.2
Means ...	...	...	21	120	89.04	-16.42	...
Group 1099.							
A single spot. A small spot is seen near it on August 18, and another on August 19.							
Aug. 16 ⁴⁸ 9	13	38	20	61	79.6	-15.7	-68.7
17 ¹³ 3	4	72	5	82	79.4	-15.7	-60.3
18 ⁴⁴ 2	20	100	15	76	78.8	-16.5	-43.7
19 ³⁷ 9	6	31	4	21	77.9	-16.2	-32.2
20 ⁴¹ 0	0	17	0	10	76.3	-18.0	-20.1
Means ...	...	...	9	50	78.40	-16.42	...
Group 1100.							
Two small spots which are measured together.							
Aug. 17 ¹³ 3	5	26	7	34	74.0	-10.8	-65.7
18 ⁴⁴ 2	0	37	0	29	73.9	-10.7	-48.6
19 ³⁷ 9	7	15	5	10	74.0	-10.8	-36.1
Means ...	...	...	4	24	73.97	-10.77	...
Group 1101.							
A compact cluster of very small faint spots. Part of it has disappeared before August 18.							
1883. _a Aug. 17 ¹³ 3	1	31	2	47	68.8	-0.1	-70.9
18 ⁴⁴ 2	0	20	0	18	68.1	-0.3	-54.4
19 ³⁷ 9	0	11	0	8	68.9	0.0	-41.2
Means ...	...	...	1	24	68.60	-0.13	...
Group 1102.							
A small faint spot. On August 19, five spots are seen scattered over a wide area. Two of these (long. 55.5°) are measured together. On August 20, only two spots remain.							
Aug. 17 ¹³ 3	1	14	5	58	55.6	+10.6	-84.1
18 ⁴⁴ 2	3	21	5	29	53.1	+12.2	-69.4
19 ³⁷ 9	15	91	12	75	57.0	+11.3	-53.1
20 ⁴¹ 0	8	49	5	31	57.7	+11.2	-38.7
Means ...	...	...	7	48	55.85	+11.33	...
Group 1103.							
A fine regular spot, followed on August 21 and succeeding days by a smaller regular spot. A number of small spots are seen at times between the two. Two small spots are seen following the group on August 27. The smaller regular spot disappears before August 30, leaving the principal spot alone.							
Aug. 20 ⁴¹ 0	11	68	31	193	18.8	-14.8	-77.6
21 ⁴⁰ 9	54	379	87	608	14.6	-15.7	-68.7
22 ⁴¹ 1	58	633	57	641	13.5	-15.6	-56.5
23 ⁴¹ 8	137	844	101	637	13.3	-15.8	-43.4
24 ⁴² 3	151	984	95	621	13.3	-15.8	-30.1
25 ⁴³ 0	154	879	88	499	13.3	-15.7	-16.7
26 ⁴⁶ 5	149	775	80	420	14.2	-15.5	-2.3
27 ⁴³ 3	100	643	56	359	15.9	-15.3	+12.3
28 ⁴⁰ 0	114	588	68	353	16.2	-15.2	+25.4
29	No photograph.		(42	298	17.4	-15.0	+40.2)
30 ⁴⁶ 9	15	253	15	243	18.5	-14.7	+55.0
31 ²⁸ 2	37	196	49	261	17.7	-14.7	+65.0
Sept. 1 ³⁹ 6	7	42	26	162	18.4	-14.2	+80.4
Means ...	...	...	63	407	15.78	-15.23	...
Group 1104.							
Two small spots on August 25. The preceding spot disappears before August 26.							
Aug. 25 ⁴³ 0	0	17	0	10	55.1	+10.4	+25.5
26 ⁴⁶ 5	4	31	3	19	53.4	+10.2	+36.9
27 ⁴³ 3	0	23	0	21	58.3	+10.9	+54.7
Means ...	...	...	1	17	55.60	+10.50	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1105.							
Two small spots on August 25. Both increase in size on the following days, the preceding spot becoming a large regular spot, the following a stream of small spots. The following part of the group disappears before August 30. A small spot is seen in advance of the group on August 28.							
1883. _d					°	°	°
Aug. 25 ⁴³⁰	13	47	7	26	13 ²	+21 ²	-16 ⁸
26 ⁴⁶⁵	87	352	45	181	16 ⁶	+20 ⁶	+0 ¹
27 ⁴³³	49	495	26	261	16 ⁸	+20 ⁸	+13 ²
28 ⁴⁰⁰	139	568	80	328	18 ³	+21 ¹	+27 ⁵
29	No photograph.		(50)	267	19 ⁴	+20 ⁷	+42 ³
30 ⁴⁶⁹	21	227	19	206	20 ⁵	+20 ³	+57 ⁰
31 ²⁸²	13	173	16	221	20 ⁷	+19 ⁹	+68 ⁰
Sept. 1 ³⁹⁶	0	53	0	180	21 ⁷	+20 ⁰	+83 ⁷
Means ...	...	...	30	209	18 ⁴⁰	+20 ⁵⁸	...
Group 1106.							
Three small spots on August 27. The group increases in size on the following days, a fresh spot of regular outline appearing on the preceding side. The following portion of the group consists of an irregular scattered stream of many small spots. The group diminishes rapidly after passing the central meridian on August 31, and only two small spots are left on September 3. The group is measured as a whole on September 1.							
Aug. 27 ⁴³³	6	61	6	56	308 ⁸	-8 ⁹	-54 ⁸
28 ⁴⁰⁰	73	348	50	239	310 ⁶	-9 ⁰	-40 ²
29	No photograph.		(40)	233	312 ⁶	-9 ¹	-24 ⁶
30 ⁴⁶⁹	58	431	30	227	314 ⁶	-9 ¹	-8 ⁹
31 ²⁸²	51	386	26	200	315 ⁵	-9 ²	+2 ⁸
Sept. 1 ³⁹⁶	45	216	25	120	318 ¹	-9 ¹	+20 ¹
2	No photograph.		(20)	100	318 ²	-8 ⁹	+33 ⁵
3 ⁴¹⁷	19	103	14	79	318 ³	-8 ⁶	+46 ⁹
4 ³⁹⁵	10	90	11	97	319 ¹	-8 ⁹	+60 ⁶
5 ⁴⁹²	0	25	0	57	319 ⁸	-9 ⁰	+75 ⁹
Means ...	...	...	22	141	315 ⁵⁶	-8 ⁹⁸	...
Group 1107.							
A fine group appearing suddenly near the centre of the sun and consisting at first of several small spots in two clusters. On August 30 it becomes two large spots, both closely accompanied by several very small spots.							
Aug. 28 ⁴⁰⁰	176	259	92	135	339 ⁴	-5 ⁸	-11 ⁴
29	No photograph.		(114)	382	339 ⁷	-5 ⁶	+2 ⁵
30 ⁴⁶⁹	255	1179	136	629	339 ⁹	-5 ³	+16 ⁴
31 ²⁸²	137	867	79	501	339 ⁸	-5 ²	+27 ¹
Sept. 1 ³⁹⁶	109	657	76	457	340 ⁵	-5 ⁰	+42 ⁵
2	No photograph.		(59)	372	341 ²	-4 ⁸	+56 ⁰
3 ⁴¹⁷	26	184	41	286	341 ⁹	-4 ⁵	+70 ⁵
Means ...	...	...	85	395	340 ³⁴	-5 ¹⁷	...
Group 1108.							
Two large regular spots with a number of small spots between them. The small spots (which are measured with the following spot on September 3) disappear before September 7. The preceding large spot undergoes a remarkable change of shape between August 30 and September 1.							
1883. _d					°	°	°
Aug. 30 ⁴⁶⁹	55	367	48	310	274 ⁰	-14 ⁸	-49 ⁵
31 ²⁸²	176	1010	129	727	272 ¹	-15 ⁴	-40 ⁶
Sept. 1 ³⁹⁶	282	1526	168	908	274 ⁰	-15 ⁵	-24 ⁰
2	No photograph.		(178)	907	273 ⁸	-15 ⁵	-10 ⁹
3 ⁴¹⁷	343	1664	187	906	273 ⁶	-15 ⁵	+2 ²
4 ³⁹⁵	247	1555	139	876	273 ³	-15 ⁶	+14 ⁸
5 ⁴⁹²	217	1284	137	803	272 ⁸	-15 ⁷	+28 ⁹
6	No photograph.		(111)	694	273 ⁴	-15 ⁸	+40 ³
7 ¹⁴⁴	94	648	85	585	273 ⁹	-15 ⁹	+51 ⁷
8 ⁵⁰⁶	69	381	120	657	274 ³	-16 ⁰	+70 ¹
9 ⁵⁶⁷	0	53	0	131	266 ⁰	-14 ⁶	+75 ⁹
Means ...	...	...	118	682	272 ⁸⁴	-15 ⁴⁸	...
Group 1109.							
A fine regular spot accompanied by two or three very small spots close to it.							
Aug. 30 ⁴⁶⁹	42	271	67	426	255 ⁷	-18 ⁴	-67 ⁸
31 ²⁸²	66	424	71	453	255 ¹	-18 ⁴	-57 ⁶
Sept. 1 ³⁹⁶	96	640	73	491	255 ²	-18 ⁴	-42 ⁸
2	No photograph.		(84)	492	254 ⁸	-18 ⁷	-29 ⁹
3 ⁴¹⁷	161	846	94	493	254 ⁴	-18 ⁹	-17 ⁰
4 ³⁹⁵	150	916	84	511	253 ⁷	-18 ⁹	-4 ⁸
5 ⁴⁹²	150	1014	85	575	253 ²	-19 ¹	+9 ³
6	No photograph.		(73)	522	253 ²	-19 ²	+20 ¹
7 ¹⁴⁴	91	710	60	468	253 ¹	-19 ²	+30 ⁹
8 ⁵⁰⁶	72	430	62	370	252 ⁶	-19 ²	+48 ⁴
9 ⁵⁶⁷	46	362	60	469	252 ⁹	-19 ⁷	+62 ⁸
10 ³⁶⁸	9	93	21	214	253 ⁶	-19 ³	+74 ⁰
Means ...	...	...	70	457	253 ⁹⁶	-18 ⁹⁵	...
Group 1110.							
A large regular spot followed at a little distance by several small spots which differ greatly in number, arrangement, and area from day to day.							
Sept. 1 ³⁹⁶	8	59	19	146	218 ⁷	+10 ⁷	-79 ³
2	No photograph.		(43)	306	217 ⁵	+10 ⁸	-67 ²
3 ⁴¹⁷	80	541	67	466	216 ³	+10 ⁹	-55 ¹
4 ³⁹⁵	95	434	62	285	217 ⁸	+10 ⁸	-40 ⁷
5 ⁴⁹²	95	485	53	268	218 ⁷	+10 ⁹	-25 ²
6	No photograph.		(48)	266	218 ⁹	+11 ¹	-14 ²
7 ¹⁴⁴	84	521	42	264	219 ⁰	+11 ³	-3 ²
8 ⁵⁰⁶	87	572	45	298	219 ⁹	+11 ⁰	+15 ⁷
9 ⁵⁶⁷	59	429	34	248	219 ⁷	+11 ¹	+29 ⁶
10 ³⁶⁸	70	463	46	305	219 ⁹	+11 ⁰	+40 ³
11	No photograph.		(47)	249	220 ⁴	+11 ⁰	+54 ⁷
12 ⁴⁸³	35	142	47	192	220 ⁸	+11 ⁰	+69 ¹
Means ...	...	...	46	274	218 ⁹⁷	+10 ⁹⁷	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1120. A small spot.							
1883. _a Sept. 13 ^h 48 ^m 9 ^s	0	21	0	15	183 ^o 1'	+ 6 ^o 0'	+44 ^o 7'
14 ^h 41 ^m 2 ^s	21	66	18	55	179 ^o 8'	+ 6 ^o 2'	+53 ^o 6'
15 ^h 54 ^m 1 ^s	0	21	0	25	176 ^o 6'	+ 7 ^o 2'	+65 ^o 3'
Means ...	...	...	6	32	179 ^o 83'	+ 6 ^o 47'	...
Group 1121. Four small spots on September 13. The two middle spots being close together are measured as one. Only two spots remain on September 14.							
Sept. 13 ^h 48 ^m 9 ^s	4	124	2	64	126 ^o 1'	+ 4 ^o 3'	-12 ^o 3'
14 ^h 41 ^m 2 ^s	3	37	2	19	126 ^o 7'	+ 4 ^o 1'	+ 0 ^o 5'
Means ...	...	...	2	42	126 ^o 40'	+ 4 ^o 20'	...
Group 1122. A group appearing suddenly near the centre of the sun. It consists at first of three small spots which are measured together. It increases in size on September 14, and then becomes a regular spot, followed by two compact clusters of small spots. These two clusters are measured as one on September 15 and 16.							
Sept. 13 ^h 48 ^m 9 ^s	19	106	10	56	128 ^o 9'	- 9 ^o 6'	- 9 ^o 5'
14 ^h 41 ^m 2 ^s	57	435	31	229	129 ^o 5'	- 9 ^o 5'	+ 3 ^o 3'
15 ^h 54 ^m 1 ^s	89	348	50	193	130 ^o 9'	- 8 ^o 4'	+19 ^o 6'
16 ^h 48 ^m 0 ^s	93	417	58	259	131 ^o 4'	- 8 ^o 4'	+32 ^o 5'
17 ^h 41 ^m 1 ^s	75	314	56	232	131 ^o 1'	- 8 ^o 8'	+44 ^o 5'
18 ^h 53 ^m 7 ^s	45	226	49	238	131 ^o 4'	- 8 ^o 5'	+59 ^o 7'
19 ^h 46 ^m 5 ^s	16	76	32	150	133 ^o 6'	- 8 ^o 2'	+74 ^o 1'
20 ^h 29 ^m 7 ^s	0	28	0	124	130 ^o 8'	- 8 ^o 0'	+82 ^o 3'
Means ...	...	...	36	185	130 ^o 95'	- 8 ^o 68'	...
Group 1123. A small spot.							
Sept. 16 ^h 48 ^m 0 ^s	0	24	0	41	24 ^o 3'	+18 ^o 6'	-74 ^o 6'
17 ^h 41 ^m 1 ^s	0	34	0	34	25 ^o 6'	+18 ^o 3'	-61 ^o 0'
18 ^h 53 ^m 7 ^s	3	16	2	12	25 ^o 4'	+18 ^o 1'	-46 ^o 3'
Means ...	...	...	1	29	25 ^o 10'	+18 ^o 33'	...
Group 1124. A small spot.							
Sept. 22 ^h 32 ^m 6 ^s	0	4	0	5	317 ^o 4'	- 7 ^o 4'	-64 ^o 4'
Means ...	...	...	0	5	317 ^o 4'	- 7 ^o 4'	...
Group 1125. Three small faint spots.							
1883. _a Sept. 22 ^h 32 ^m 6 ^s	0	11	0	14	314 ^o 5'	+18 ^o 4'	-67 ^o 3'
Means ...	...	...	0	14	314 ^o 5'	+18 ^o 4'	...
Group 1126. A regular spot.							
Sept. 26 ^h 55 ^m 9 ^s	0	48	0	120	250 ^o 6'	-19 ^o 0'	-75 ^o 3'
27 ^h 39 ^m 7 ^s	19	79	26	109	250 ^o 4'	-19 ^o 2'	-64 ^o 4'
28 ^h 42 ^m 2 ^s	33	163	30	147	250 ^o 5'	-18 ^o 9'	-50 ^o 8'
29 ^h 39 ^m 4 ^s	33	175	24	125	250 ^o 0'	-18 ^o 9'	-38 ^o 5'
30 ^h 13 ^m 4 ^s	36	230	23	146	249 ^o 8'	-18 ^o 9'	-28 ^o 9'
Oct. 1 ^h 52 ^m 3 ^s	27	226	16	128	250 ^o 0'	-19 ^o 0'	-10 ^o 4'
2 ^h 56 ^m 3 ^s	35	308	19	171	249 ^o 5'	-18 ^o 4'	+ 2 ^o 9'
3 ^h 29 ^m 5 ^s	45	279	26	159	249 ^o 5'	-18 ^o 7'	+12 ^o 5'
4 ^h 29 ^m 5 ^s	34	241	21	148	249 ^o 3'	-18 ^o 7'	+25 ^o 5'
5 ^h 45 ^m 2 ^s	25	141	18	103	248 ^o 9'	-18 ^o 3'	+40 ^o 4'
6 ^h 54 ^m 1 ^s	17	80	16	77	248 ^o 5'	-18 ^o 1'	+54 ^o 4'
7 ^h 14 ^m 4 ^s	13	75	15	92	248 ^o 2'	-18 ^o 3'	+62 ^o 0'
8 ^h 14 ^m 8 ^s	5	34	12	82	248 ^o 1'	-18 ^o 4'	+75 ^o 2'
Means ...	...	...	19	124	249 ^o 48'	-18 ^o 68'	...
Group 1127. Several very small spots.							
Sept. 28 ^h 42 ^m 2 ^s	8	63	4	34	303 ^o 3'	-14 ^o 5'	+ 2 ^o 0'
29 ^h 39 ^m 4 ^s	0	27	0	15	302 ^o 3'	-12 ^o 6'	+13 ^o 8'
30 ^h 13 ^m 4 ^s	0	16	0	10	303 ^o 0'	-13 ^o 4'	+24 ^o 3'
Means ...	...	...	1	20	302 ^o 87'	-13 ^o 50'	...
Group 1128. Several very small spots.							
Sept. 29 ^h 39 ^m 4 ^s	0	34	0	24	254 ^o 3'	-20 ^o 8'	-34 ^o 2'
30 ^h 13 ^m 4 ^s	0	18	0	12	252 ^o 1'	-21 ^o 5'	-26 ^o 6'
Means ...	...	...	0	18	253 ^o 20'	-21 ^o 15'	...
Group 1129. A small spot.							
Sept. 29 ^h 39 ^m 4 ^s	0	20	0	22	224 ^o 8'	+13 ^o 1'	-63 ^o 7'
30 ^h 13 ^m 4 ^s	3	9	2	7	225 ^o 2'	+13 ^o 0'	-53 ^o 5'
Means ...	...	...	1	15	225 ^o 00'	+13 ^o 05'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1130.							
A fine spot with a smaller one following it. Some small spots appear near them on October 7, but disappear before October 10, and the principal spot alone remains on October 11.							
1883. ^a					°	°	°
Oct. 2 ^h 56 ^m 3	32	227	51	358	176.2	- 6.0	-70.4
3 ^h 29 ^m 5	44	241	48	259	176.2	- 7.0	-60.8
4 ^h 29 ^m 5	59	436	45	335	176.3	- 7.0	-47.5
5 ^h 45 ^m 2	93	354	56	213	176.9	- 7.0	-31.6
6 ^h 54 ^m 1	94	373	51	199	176.9	- 6.8	-17.2
7 ^h 14 ^m 4	61	377	31	196	177.2	- 6.9	- 9.0
8 ^h 14 ^m 8	64	342	33	177	177.2	- 6.9	+ 4.3
9 ^h 28 ^m 4	44	242	24	132	177.5	- 6.7	+19.6
10 ^h 54 ^m 9	51	254	33	163	178.1	- 6.5	+36.8
11 ^h 17 ^m 3	16	173	12	128	178.6	- 6.3	+45.6
12 ^h 16 ^m 7	21	115	21	115	178.6	- 6.6	+58.5
13 ^h 41 ^m 5	7	52	14	109	178.7	- 7.1	+75.2
14 ^h 14 ^m 4	2	50	3	70	177.6	- 6.3	+83.8
Means ...	...	...	32	189	177.38	- 6.70	...
Group 1131.							
A small spot. Two smaller spots are seen near and measured with it on October 6, and on October 7 the group consists of a great number of very small spots.							
Oct. 5 ^h 45 ^m 2	0	9	0	6	250.1	-11.9	+41.6
6 ^h 54 ^m 1	1	8	1	7	248.0	-11.3	+53.9
7 ^h 14 ^m 4	0	25	0	31	249.7	-12.0	+63.5
Means ...	...	...	0	15	249.27	-11.73	...
Group 1132.							
A small spot on October 5. On October 6, 7, and 8 the group is composed of a few faint and widely scattered small spots. It has undergone an entire change before October 9, and then consists of two spots with some very faint spots near them. The group undergoes several slighter changes on the following days. Only one spot is visible on October 15.							
Oct. 5 ^h 45 ^m 2	7	15	8	18	144.7	- 5.9	-63.8
6 ^h 54 ^m 1	5	74	4	59	144.0	- 4.7	-50.1
7 ^h 14 ^m 4	10	78	8	55	144.0	- 5.3	-42.2
8 ^h 14 ^m 8	7	43	4	26	144.4	- 5.3	-28.5
9 ^h 28 ^m 4	63	168	33	88	145.5	- 5.9	-12.4
10 ^h 54 ^m 9	27	361	13	184	145.5	- 5.5	+ 4.2
11 ^h 17 ^m 3	61	434	32	226	145.2	- 5.6	+12.2
12 ^h 16 ^m 7	32	320	18	183	145.6	- 5.8	+25.5
13 ^h 41 ^m 5	74	142	51	96	144.8	- 5.9	+41.3
14 ^h 54 ^m 8	0	29	0	29	146.4	- 6.2	+57.9
15 ^h 38 ^m 3	0	41	0	60	146.3	- 6.3	+68.8
Means ...	...	...	16	93	145.13	- 5.67	...
Group 1133.							
A regular spot. A small very faint spot is seen near it on October 11, and two on October 12.							
1883. ^a					°	°	°
Oct. 5 ^h 45 ^m 2	25	144	78	450	131.0	-22.4	-77.5
6 ^h 54 ^m 1	63	362	87	496	130.3	-22.1	-63.8
7 ^h 14 ^m 4	87	415	93	444	129.7	-22.3	-56.5
8 ^h 14 ^m 8	101	532	82	431	129.2	-22.6	-43.7
9 ^h 28 ^m 4	90	628	59	412	129.1	-22.3	-28.8
10 ^h 54 ^m 9	160	747	93	435	128.9	-22.3	-12.4
11 ^h 17 ^m 3	122	659	70	378	128.9	-22.4	- 4.1
12 ^h 16 ^m 7	131	679	76	393	128.7	-22.5	+ 8.6
13 ^h 41 ^m 5	156	635	98	398	128.0	-22.4	+24.5
14 ^h 54 ^m 8	85	488	63	363	127.7	-22.5	+39.2
15 ^h 38 ^m 3	111	405	101	366	127.7	-22.4	+50.2
16 ^h 52 ^m 2	43	269	61	384	127.3	-22.4	+64.9
17 ^h 39 ^m 7	27	104	78	294	127.6	-22.7	+76.7
Means ...	...	...	80	403	128.78	-22.41	...
Group 1134.							
A regular spot. A small spot follows it on October 8, and other small spots appear in its neighbourhood on October 10 and following days. The principal spot diminishes in size at the same time, so that after October 14 the group consists of a great number of small spots irregularly distributed.							
Oct. 6 ^h 54 ^m 1	0	25	0	101	110.1	+11.2	-84.0
7 ^h 14 ^m 4	7	31	14	62	109.9	+11.0	-76.3
8 ^h 14 ^m 8	13	83	14	90	110.0	+11.1	-62.9
9 ^h 28 ^m 4	20	142	14	103	111.0	+11.0	-46.9
10 ^h 54 ^m 9	33	197	19	113	112.0	+12.0	-29.3
11 ^h 17 ^m 3	36	213	20	114	112.7	+10.5	-20.3
12 ^h 16 ^m 7	46	292	23	148	114.8	+10.4	- 5.3
13 ^h 41 ^m 5	45	257	23	132	116.2	+10.5	+12.7
14 ^h 54 ^m 8	41	244	24	139	117.1	+10.5	+28.6
15 ^h 38 ^m 3	73	449	47	285	115.7	+10.8	+38.2
16 ^h 52 ^m 2	32	282	28	249	118.2	+10.9	+55.8
17 ^h 39 ^m 7	36	214	45	277	118.7	+11.0	+67.8
Means ...	...	...	23	151	113.87	+10.91	...
Group 1135.							
Several very small faint spots on October 7. On October 8 two dark and well-defined spots have formed. On October 9 the group consists of a great number of small spots extending over a large area. The group continues to increase in size until it passes out of view at the west limb.							
Oct. 7 ^h 14 ^m 4	0	24	0	13	206.1	-11.1	+19.9
8 ^h 14 ^m 8	33	113	21	72	206.5	-10.2	+33.6
9 ^h 28 ^m 4	20	94	17	74	206.3	- 9.8	+48.4
10 ^h 54 ^m 9	15	259	16	316	205.3	-10.3	+64.0
11 ^h 17 ^m 3	23	239	39	440	205.7	-10.2	+72.7
12 ^h 16 ^m 7	3	44	6	223	203.2	-10.5	+83.1
Means ...	...	...	17	190	205.52	-10.35	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	
	Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 1136.								
Two small spots on October 7. The preceding spot increases in size on the following days, and many small spots appear near it, <i>s</i> and <i>f</i> . The smaller spots disappear before October 17.								
1883. _a Oct.	7 ¹⁴⁴	0	11	0	15	121.5	-17.8	-64.7
	8 ¹⁴⁸	21	101	19	87	122.5	-15.8	-50.4
	9 ²⁸⁴	44	303	29	202	122.9	-16.1	-35.0
	10 ⁵⁴⁹	141	710	81	405	122.4	-16.0	-18.9
	11 ¹⁷³	83	892	46	491	122.8	-16.2	-10.2
	12 ¹⁶⁷	91	683	49	370	123.6	-16.1	+3.5
	13 ⁴¹⁵	139	720	81	414	123.5	-16.4	+20.0
	14 ⁵⁴⁸	62	364	42	245	124.7	-15.9	+36.2
	15 ³⁸³	67	320	55	261	125.5	-15.6	+48.0
	16 ⁵²²	17	186	22	232	125.7	-15.9	+63.3
	17 ³⁹⁷	23	73	57	180	126.9	-16.8	+76.0
Means	...	...	...	44	264	123.82	-16.24	...
Group 1137.								
A regular spot with a small spot closely following it on October 8 and 9. Another very small spot follows it on October 12. The principal spot slowly diminishes in size as it approaches the west limb.								
Oct.	7 ¹⁴⁴	8	90	18	200	111.2	-13.1	-75.0
	8 ¹⁴⁸	15	125	17	142	111.4	-13.1	-61.5
	9 ²⁸⁴	16	114	12	88	111.6	-12.9	-46.3
	10 ⁵⁴⁹	26	79	16	48	111.9	-12.7	-29.4
	11 ¹⁷³	13	108	7	61	112.0	-12.8	-21.0
	12 ¹⁶⁷	20	99	11	53	111.7	-12.6	-8.4
	13 ⁴¹⁵	11	95	6	51	112.1	-12.7	+8.6
	14 ⁵⁴⁸	0	37	0	22	111.9	-13.0	+23.4
	15 ³⁸³	0	41	0	27	112.1	-12.7	+34.6
	16 ⁵²²	0	8	0	7	112.0	-12.7	+49.6
Means	...	...	...	9	70	111.79	-12.83	...
Group 1138.								
Two small spots on October 8. The group increases in size rapidly on the following days, the preceding spot becoming a very large and irregular spot. It is followed by an irregular stream of spots, some of them large, and spread over an extensive area. Part of the large spot becomes detached and is measured separately on October 17, whilst the smaller spots are measured with the main body of the large spot.								
Oct.	8 ¹⁴⁸	19	64	16	51	121.2	+12.6	-51.7
	9 ²⁸⁴	52	351	32	219	121.3	+12.6	-36.6
	10 ⁵⁴⁹	192	832	102	440	123.0	+12.2	-18.3
	11 ¹⁷³	158	987	80	506	123.3	+12.2	-9.7
	12 ¹⁶⁷	183	1270	92	644	123.5	+12.3	+3.4
	13 ⁴¹⁵	341	1876	184	1014	125.7	+11.3	+22.2
	14 ⁵⁴⁸	447	1534	283	972	126.1	+11.3	+37.6
	15 ³⁸³	359	2201	271	1670	126.5	+10.9	+49.0
	16 ⁵²²	244	1340	275	1466	126.1	+11.4	+63.7
	17 ³⁹⁷	70	567	151	1071	126.3	+10.9	+75.4
Means	...	...	...	149	805	124.30	+11.77	...
Group 1139.								
Three spots on October 9. One of these disappears before October 10, whilst the preceding spot separates into two portions. A fourth spot is seen on October 11. Only the two preceding spots (which are measured together) are left on October 12.								
1883. _a Oct.	9 ²⁸⁴	14	119	10	75	121.2	+17.8	-36.7
	10 ⁵⁴⁹	3	98	2	53	121.5	+17.2	-19.8
	11 ¹⁷³	22	124	11	65	121.5	+17.5	-11.5
	12 ¹⁶⁷	10	22	5	11	123.0	+16.9	+2.9
Means	...	...	...	7	51	121.80	+17.35	...
Group 1140.								
A regular spot.								
Oct.	9 ²⁸⁴	5	32	10	66	80.5	+15.1	-77.4
	10 ⁵⁴⁹	29	48	29	48	80.6	+15.2	-60.7
	11 ¹⁷³	13	78	11	64	80.4	+15.3	-52.6
	12 ¹⁶⁷	12	122	8	80	81.0	+15.6	-39.1
	13 ⁴¹⁵	29	108	16	59	82.2	+16.1	-21.3
	14 ⁵⁴⁸	23	96	12	49	81.1	+16.5	-7.4
	15 ³⁸³	33	96	17	49	81.2	+16.0	+3.7
	16 ⁵²²	17	61	9	33	81.0	+16.0	+18.6
	17 ³⁹⁷	5	19	3	11	81.0	+15.9	+30.1
	18 ³⁹⁷	2	15	1	10	81.2	+15.9	+43.4
Means	...	...	...	12	47	81.02	+15.76	...
Group 1141.								
Two small spots. Only the preceding spot is seen on October 13.								
Oct.	11 ¹⁷³	14	32	11	25	178.3	-17.8	+45.3
	12 ¹⁶⁷	7	32	8	38	181.2	-18.1	+61.1
	13 ⁴¹⁵	2	17	8	54	182.1	-18.9	+78.6
Means	...	...	...	9	39	180.53	-18.27	...
Group 1142.								
A number of small spots on October 11, which have greatly increased in size before October 12, and on the following days tend to coalesce into two clusters, finally forming two regular spots on October 16. The preceding spot has passed the west limb before October 17.								
Oct.	11 ¹⁷³	0	21	0	11	128.9	-9.2	-4.1
	12 ¹⁶⁷	42	371	22	196	130.0	-8.9	+9.9
	13 ⁴¹⁵	87	409	51	238	130.2	-9.4	+26.7
	14 ⁵⁴⁸	127	484	89	338	130.0	-9.5	+41.5
	15 ³⁸³	99	477	85	414	130.4	-9.4	+52.9
	16 ⁵²²	28	280	39	409	130.9	-9.7	+68.5
	17 ³⁹⁷	23	54	57	133	128.0	-10.0	+77.1
Means	...	...	...	49	248	129.77	-9.44	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1143. Two very small spots.							
1883. _d Oct. 12 ¹⁶ 7	0	5	0	6	183 ⁷	+14 ⁴	+63 ⁶
Means ...	...	...	0	6	183 ⁷	+14 ⁴	...
Group 1144. A very large and fine spot. The spot is measured in three parts on October 13, and in two parts on October 15. A regular spot is separated from it by October 15, and some very small spots are seen from time to time in its immediate neighbourhood.							
Oct. 12 ¹⁶ 7	32	119	172	636	36 ⁶	-10 ²	-83 ⁵
13 ⁴ 15	200	1071	287	1700	33 ⁸	-8 ⁹	-69 ⁷
14 ⁵ 48	273	1770	246	1592	34 ¹	-8 ⁸	-54 ⁴
15 ³ 83	349	1917	250	1364	34 ⁰	-10 ⁰	-43 ⁵
16 ⁵ 22	292	1844	171	1080	35 ³	-9 ⁸	-27 ¹
17 ³ 97	276	1974	148	1066	35 ⁵	-10 ²	-15 ⁴
18 ³ 97	325	2370	169	1231	35 ²	-9 ⁹	-2 ⁶
19 ³ 11	334	2338	176	1237	35 ³	-10 ¹	+9 ⁶
20 ⁴ 73	302	2153	174	1240	35 ³	-9 ⁹	+24 ⁹
21 ⁴ 77	277	1450	187	969	35 ⁷	-9 ⁷	+38 ⁵
22 ⁴ 87	222	1024	188	869	36 ⁰	-9 ⁷	+52 ²
23 ¹ 61	144	715	158	776	36 ¹	-9 ⁹	+61 ¹
24 ² 94	76	367	172	808	35 ⁸	-10 ¹	+75 ⁸
Means ...	...	...	192	1121	35 ²⁸	-9 ⁷⁸	...
Group 1145. A small spot. Two other small spots are seen near it on October 14.							
Oct. 13 ⁴ 15	0	17	0	18	167 ⁰	+5 ⁶	+63 ⁵
14 ¹ 44	4	108	3	74	172 ⁹	+3 ⁵	+79 ¹
Means ...	...	...	2	46	169 ⁹⁵	+4 ⁵⁵	...
Group 1145*. A regular spot.							
Oct. 14 ¹ 44	50	141	27	76	167 ⁸	-13 ³	+74 ⁰
Means ...	...	...	27	76	167 ⁸	-13 ³	...
Group 1146. A cluster of small spots.							
1883. _d Oct. 15 ³ 83	33	122	18	66	58 ⁸	-6 ⁴	-18 ⁷
16 ⁵ 22	25	246	13	127	57 ³	-7 ¹	-5 ¹
17 ³ 97	38	286	20	148	57 ⁶	-7 ¹	+6 ⁷
18 ³ 97	46	176	25	96	57 ⁵	-6 ⁶	+19 ⁷
19 ³ 11	25	217	16	137	60 ⁵	-6 ⁶	+34 ⁸
20 ⁴ 73	31	112	26	91	61 ¹	-6 ⁶	+50 ⁷
21 ⁴ 77	16	136	20	167	62 ⁰	-6 ⁵	+64 ⁸
Means ...	...	...	20	119	59 ²⁶	-6 ⁷⁰	...
Group 1147. A small spot, which is replaced by another small spot on October 18.							
Oct. 14 ¹ 44	10	51	18	92	19 ³	+12 ¹	-74 ⁵
15 ³ 83	21	73	19	68	19 ⁶	+11 ⁹	-57 ⁹
16 ⁵ 22	2	30	2	20	19 ⁴	+12 ⁰	-43 ⁰
17 ³ 97	0	25	0	15	19 ⁸	+12 ¹	-31 ¹
18 ³ 97	0	17	0	9	22 ⁶	+12 ⁵	-15 ²
Means ...	...	...	8	41	20 ¹⁴	+12 ¹²	...
Group 1148. Two small spots. They are measured together on October 17.							
Oct. 17 ³ 97	0	17	0	10	24 ¹	+20 ⁹	-26 ⁸
18 ³ 97	4	26	2	14	23 ⁵	+20 ⁶	-14 ³
Means ...	...	...	1	12	23 ⁸⁰	+20 ⁷⁵	...
Group 1149. A number of small spots. The group undergoes many changes, rapidly increasing in size after passing the central meridian on October 24.							
Oct. 20 ⁴ 73	37	89	31	72	320 ⁶	-10 ⁶	-49 ⁸
21 ⁴ 77	53	269	35	175	321 ⁴	-11 ⁰	-35 ⁸
22 ⁴ 87	40	259	23	145	321 ⁴	-10 ⁵	-22 ⁴
23 ¹ 61	33	174	18	94	321 ⁰	-11 ²	-14 ⁰
24 ² 94	76	345	40	180	323 ⁰	-11 ⁵	+3 ⁰
25 ⁴ 32	58	719	32	404	325 ²	-11 ⁶	+20 ²
26 ³ 11	57	672	34	419	325 ⁸	-12 ¹	+32 ⁴
27 ⁵ 36	105	851	87	699	326 ⁹	-11 ⁹	+49 ⁷
28 ⁵ 75	97	744	117	887	327 ¹	-11 ⁹	+63 ⁵
29 ⁵ 86	0	177	0	410	326 ³	-12 ⁰	+76 ²
30 ³ 04	8	87	30	316	321 ⁶	-12 ⁶	+80 ⁸
Means ...	...	...	41	346	323 ⁶⁶	-11 ⁵⁴	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1150.							
A number of small spots arranged in a straight line.							
1883. _d Oct. 21 ^h 47 ^m	23	140	13	81	25°0	+18°1	+27°8
22 ^h 48 ^m	42	250	29	170	25°5	+18°0	+41°7
Means ...	...	...	21	126	25°25	+18°05	...
Group 1151.							
Two very small spots.							
Oct. 21 ^h 47 ^m	0	12	0	6	356°3	+13°7	— 0°9
Means ...	...	...	0	6	356°3	+13°7	...
Group 1152.							
A regular spot with two or three small faint spots near it.							
Oct. 21 ^h 47 ^m	16	95	31	178	281°9	+14°3	—75°3
22 ^h 48 ^m	16	159	17	165	282°0	+14°7	—61°8
23 ^h 16 ^m	30	176	25	148	281°7	+14°7	—53°3
24 ^h 29 ^m	12	140	8	90	281°4	+14°9	—38°6
25 ^h 43 ^m	16	192	9	106	281°7	+14°7	—23°3
26 ^h 31 ^m	10	159	5	82	281°4	+14°9	—12°0
27 ^h 53 ^m	23	111	12	57	281°7	+15°1	+4°5
28 ^h 57 ^m	16	66	9	35	282°4	+14°9	+18°8
29 ^h 58 ^m	7	37	4	22	282°0	+15°0	+31°9
30 ^h 30 ^m	1	16	1	11	282°3	+15°0	+41°5
Means ...	...	...	12	89	281°85	+14°82	...
Group 1153.							
A very small spot, which is not seen on October 24. A second is seen near it on October 25.							
Oct. 23 ^h 16 ^m	0	8	0	4	356°8	+13°8	+21°8
24 ^h 29 ^m	0	0	0	0	...	...	...
25 ^h 43 ^m	3	16	3	11	351°9	+13°8	+46°9
26 ^h 31 ^m	0	11	0	11	356°0	+14°0	+62°6
Means ...	...	...	1	7	354°90	+13°87	...
Group 1154.							
A regular spot. Occasionally small faint spots are seen close to it.							
Oct. 23 ^h 16 ^m	6	50	23	179	253°5	— 6°5	—81°5
24 ^h 29 ^m	8	114	11	153	253°0	— 6°8	—67°0
25 ^h 43 ^m	26	209	21	173	253°7	— 6°6	—51°3
26 ^h 31 ^m	15	145	10	97	253°3	— 6°7	—40°1

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1154—continued.							
1883. _d Oct. 27 ^h 53 ^m	34	200	19	112	253°9	— 6°0	—23°3
28 ^h 57 ^m	21	143	11	73	254°5	— 6°1	— 9°1
29 ^h 58 ^m	21	143	11	72	254°9	— 6°2	+4°8
30 ^h 30 ^m	23	118	12	62	255°0	— 6°2	+14°2
31 ^h 29 ^m	17	104	10	60	255°2	— 6°4	+27°5
Nov. 1 ^h 28 ^m	4	43	3	29	255°1	— 6°6	+40°5
2 ^h 28 ^m	5	18	4	16	254°9	— 6°5	+53°5
3 ^h 16 ^m	0	3	0	4	255°0	— 6°5	+65°2
Means ...	...	...	11	86	254°33	— 6°43	...
Group 1155.							
Three small spots, the first two of which are close together, and are, therefore, measured as one. The following spot disappears before October 30, and the preceding spots break up and form a compact cluster of small spots, of which only two remain on November 1.							
Oct. 25 ^h 43 ^m	18	87	27	127	236°0	— 7°4	—69°0
26 ^h 31 ^m	18	195	19	195	234°7	— 7°6	—58°7
27 ^h 53 ^m	29	266	20	184	235°1	— 7°1	—42°1
28 ^h 57 ^m	26	206	15	119	235°3	— 7°4	—28°3
29 ^h 58 ^m	40	85	21	45	236°2	— 7°1	—13°9
30 ^h 30 ^m	18	92	9	47	237°1	— 6°9	— 3°7
31 ^h 29 ^m	10	60	5	31	237°4	— 6°8	+9°7
Nov. 1 ^h 28 ^m	6	22	3	12	237°5	— 6°8	+22°9
2 ^h 28 ^m	1	22	1	14	237°8	— 6°9	+36°4
3 ^h 16 ^m	2	5	2	4	238°1	— 7°0	+48°3
Means ...	...	...	12	78	236°52	— 7°10	...
Group 1156.							
A large regular spot, followed by a smaller one. On October 29 and following days some very small faint spots follow the group. The two principal spots extend toward each other, and are measured together on October 30; on November 1 they coalesce. On the same day, the larger and preceding spot, which from October 25 has gradually been opening from the southern side, is finally divided into two portions, and the preceding portion breaks up into a number of small spots. On the following days the group consists mainly of two clusters of small spots, both of which, but especially the following cluster, diminish rapidly in size.							
Oct. 25 ^h 43 ^m	4	49	16	187	223°3	— 9°1	—81°7
26 ^h 43 ^m	31	315	50	511	222°4	— 9°4	—71°0
27 ^h 53 ^m	77	614	69	563	222°1	— 9°3	—55°1
28 ^h 57 ^m	145	866	100	594	222°4	— 9°9	—41°2
29 ^h 58 ^m	184	1146	107	664	222°7	— 9°9	—27°4
30 ^h 30 ^m	162	1107	86	601	223°0	— 9°6	—17°8
31 ^h 29 ^m	209	1115	110	578	223°9	—10°2	— 3°8
Nov. 1 ^h 28 ^m	105	1079	55	564	224°9	—10°6	+10°3
2 ^h 28 ^m	48	466	27	261	224°5	—10°4	+23°1
3 ^h 16 ^m	43	261	28	167	225°9	— 9°9	+36°1
4 ^h 20 ^m	14	109	11	90	227°0	— 9°9	+50°9
5 ^h 39 ^m	0	29	0	44	230°3	— 9°6	+69°9
Means ...	...	...	55	402	224°37	— 9°82	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1157. A small spot.								Group 1161. Three regular spots. Several small spots are seen near the middle spot on October 30 and 31. The two following spots break up and diminish in size on the following days, and disappear, the last spot before November 4, the middle spot before November 5, leaving the preceding spot alone.							
1883. ^a Oct. 27 ⁵³⁶ 28 ⁵⁷⁵	3 2	12 19	2 1	7 15	311 ⁹ 312 ²	— 7 ⁴ — 7 ⁸	+ 34 ⁷ + 48 ⁶	1883. ^a Oct. 28 ⁵⁷⁵ 29 ⁵⁸⁶ 30 ³⁰⁴ 31 ²⁹⁷	4 27 61 86	34 363 428 581	12 29 62 60	95 513 428 420	183 ⁶ 180 ⁶ 180 ⁷ 181 ⁴	+ 2 ⁶ + 3 ⁹ + 4 ⁰ + 3 ⁹	— 80 ⁰ — 69 ⁵ — 60 ¹ — 46 ³
Means ...	...	...	2	11	312 ⁰⁵	— 7 ⁶⁰	...	Nov. 1 ²⁸⁷ 2 ²⁸⁹ 3 ¹⁶³ 4 ²⁰⁷ 5 ³⁹⁷ 6 ²⁹⁶ 7 ¹⁵⁹ 8 ¹⁶¹	83 89 105 68 87 35 22 13	619 511 446 375 312 254 199 126	49 46 53 35 49 23 18 16	367 267 225 192 177 164 159 146	182 ³ 184 ¹ 185 ² 187 ⁰ 187 ⁵ 188 ⁰ 188 ⁴ 188 ³	+ 3 ⁸ + 3 ³ + 3 ² + 2 ⁷ + 2 ⁴ + 2 ⁵ + 2 ⁴ + 3 ¹	— 32 ³ — 17 ³ — 4 ⁶ + 10 ⁹ + 27 ¹ + 39 ⁴ + 51 ³ + 64 ⁴
								Means ...	...	...	38	263	184 ⁷⁶	+ 3 ¹⁵	...
Group 1158. Three very small spots on October 28. The group rapidly increases in size on the following days, and on October 30 consists of a large regular spot, with a somewhat scattered cluster of small spots at a little distance. These small spots tend to coalesce after passing the central meridian on October 31, and at the same time diminish in size.															
Oct. 28 ⁵⁷⁵ 29 ⁵⁸⁶ 30 ³⁰⁴ 31 ²⁹⁷	0 74 100 85	18 152 524 535	0 40 54 44	12 84 279 281	230 ³ 230 ⁵ 231 ² 230 ⁶	+ 22 ³ + 21 ⁶ + 22 ² + 22 ⁵	— 33 ³ — 19 ⁶ — 9 ⁶ + 2 ⁹	Nov. 1 ²⁸⁷ 2 ²⁸⁹ 3 ¹⁶³ 4 ²⁰⁷ 5 ³⁹⁷ 6 ²⁹⁶	49 26 28 22 0 3	397 370 253 150 45 26	27 15 19 20 0 8	217 220 173 132 65 74	230 ² 229 ⁵ 229 ⁵ 229 ⁷ 229 ³ 229 ²	+ 22 ⁵ + 22 ² + 22 ⁵ + 22 ³ + 22 ⁸ + 22 ⁴	+ 15 ⁶ + 28 ¹ + 39 ⁷ + 53 ⁶ + 68 ⁹ + 80 ⁶
Means ...	...	...	23	154	230 ⁰⁰	+ 22 ³³	...	Group 1162. A scattered group composed of very small spots.							
								Oct. 29 ⁵⁸⁶ 30 ³⁰⁴ 31 ²⁹⁷	8 10 2	58 46 14	5 6 1	35 28 9	258 ⁶ 257 ⁶ 256 ⁰	— 28 ² — 28 ¹ — 28 ³	+ 8 ⁵ + 16 ⁸ + 28 ³
								Means ...	...	...	4	24	257 ⁴⁰	— 28 ²⁰	...
Group 1159. A small spot.								Group 1163. An irregular and very scattered group of small spots. The group undergoes constant change during the period of its visibility.							
Oct. 28 ⁵⁷⁵ Means ...	4 ...	23 ...	4 4	20 20	210 ⁹ 210 ⁹	— 12 ⁷ — 12 ⁷	— 52 ⁷ ...	Group 1160. A cluster of small spots.							
								Oct. 30 ³⁰⁴ 31 ²⁹⁷	8 37	13 168	5 22	8 97	203 ⁸ 200 ⁴	— 11 ⁴ — 11 ³	— 37 ⁰ — 27 ³
Oct. 28 ⁵⁷⁵ 29 ⁵⁸⁶ 30 ³⁰⁴ 31 ²⁹⁷	0 0 6 14	28 48 81 55	0 0 4 8	40 42 59 33	193 ⁶ 193 ⁶ 194 ⁰ 195 ²	+ 14 ² + 13 ⁵ + 13 ⁰ + 13 ¹	— 70 ⁰ — 56 ⁵ — 46 ⁸ — 32 ⁵	Nov. 1 ²⁸⁷ 2 ²⁸⁹ 3 ¹⁶³ 4 ²⁰⁷ 5 ³⁹⁷ 6 ²⁹⁶ 7 ¹⁵⁹ 8 ¹⁶¹	40 27 36 36 42 40 20 0	162 144 285 315 380 265 323 19	21 14 20 22 34 47 39 0	87 75 156 196 305 302 639 117	200 ⁹ 204 ⁴ 207 ¹ 209 ⁶ 209 ⁹ 211 ³ 211 ⁵ 208 ³	— 11 ⁸ — 11 ⁶ — 10 ⁸ — 10 ⁶ — 10 ⁹ — 10 ⁴ — 10 ⁷ — 13 ¹	— 13 ⁷ + 3 ⁰ + 17 ³ + 33 ⁵ + 49 ⁵ + 62 ⁷ + 74 ⁴ + 84 ⁴
Means ...	...	...	2	37	194 ⁴⁸	+ 13 ³⁴	...	Means ...	...	...	22	198	206 ⁷²	— 11 ²⁶	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1164. A small spot.							
1883. _a Oct. 31 ²⁹ 7	0	15	0	19	160.5	+10.6	-67.2
Nov. 1 ²⁸ 7	7	27	6	23	160.5	+10.4	-54.1
2 ²⁸ 9	6	12	4	8	160.8	+10.2	-40.6
3 ¹⁶ 3	8	18	5	11	161.1	+10.3	-28.7
4 ²⁰ 7	6	13	3	7	161.5	+10.4	-14.6
5 ³⁹ 7	0	29	0	14	162.1	+10.3	+1.7
Means ...	...	...	3	14	161.08	+10.37	...
Group 1165. A small spot. A second spot is seen near it on November 2 and 3, and another is seen on November 7.							
Nov. 1 ²⁸ 7	0	11	0	40	133.0	-11.0	-81.6
2 ²⁸ 9	6	34	10	55	130.6	-10.4	-70.8
3 ¹⁶ 3	8	22	7	22	132.4	-10.4	-57.4
4 ²⁰ 7	6	13	4	9	134.0	-11.0	-42.1
5 ³⁹ 7	0	16	0	10	134.3	-11.7	-26.1
6 ²⁹ 6	5	11	3	6	134.2	-11.4	-14.4
7 ¹⁵ 9	0	21	0	11	134.1	-9.8	-3.0
8 ¹⁶ 1	0	4	0	2	132.3	-10.6	+8.4
9 ⁵¹ 8	4	27	1	15	131.8	-8.9	+25.7
Means ...	...	...	3	19	132.97	-10.58	...
Group 1166. Three spots of considerable size with several very small spots near. The larger spot breaks up into a number of fragments, and the entire group diminishes rapidly in size on November 3 and the following days. The group covers a wide area, the individual spots being somewhat scattered.							
Nov. 1 ²⁸ 7	9	112	33	429	131.4	+10.4	-83.2
2 ²⁸ 9	28	307	42	464	130.2	+10.2	-71.2
3 ¹⁶ 3	52	442	50	433	130.5	+10.8	-59.3
4 ²⁰ 7	53	405	37	289	131.0	+10.6	-45.1
5 ³⁹ 7	94	508	54	294	131.8	+11.0	-28.6
6 ²⁹ 6	92	384	49	200	132.7	+11.1	-15.9
7 ¹⁵ 9	28	205	15	104	133.2	+11.2	-3.9
8 ¹⁶ 1	20	132	11	67	132.8	+11.2	+8.9
9 ⁵¹ 8	17	161	10	92	135.1	+10.3	+29.0
10 ⁵⁴ 1	2	56	1	38	135.0	+9.9	+42.4
Means ...	...	...	30	241	132.37	+10.67	...
Group 1167. A small spot.							
Nov. 2 ²⁸ 9	0	10	0	5	206.5	+7.2	+5.1
Means ...	...	...	0	5	206.5	+7.2	...
Group 1168. A regular spot. It diminishes in size on November 3 and the following days.							
1883. _a Nov. 2 ²⁸ 9	8	54	15	94	130.0	-16.8	-71.4
3 ¹⁶ 3	8	75	9	78	131.5	-16.8	-58.3
4 ²⁰ 7	8	73	6	55	131.7	-16.8	-44.4
5 ³⁹ 7	11	57	7	36	132.5	-16.5	-27.9
6 ²⁹ 6	2	22	1	12	132.6	-16.6	-16.0
Means ...	...	...	8	55	131.66	-16.70	...
Group 1169. A large regular spot.							
Nov. 2 ²⁸ 9	0	41	0	219	119.1	-23.4	-82.3
3 ¹⁶ 3	22	125	38	212	120.5	-23.3	-69.3
4 ²⁰ 7	32	223	33	231	119.9	-23.2	-56.2
5 ³⁹ 7	70	322	53	246	119.9	-23.8	-40.5
6 ²⁹ 6	56	328	36	210	119.2	-23.3	-29.4
7 ¹⁵ 9	69	352	41	207	118.8	-23.0	-18.3
8 ¹⁶ 1	57	348	32	195	118.7	-23.2	-5.2
9 ⁵¹ 8	60	336	34	192	118.3	-22.8	+12.2
10 ⁵⁴ 1	66	322	41	199	117.8	-23.2	+25.2
11	No photograph.	(36	177	117.4	-23.3	+37.8)	
12 ⁵² 0	35	176	31	156	116.9	-23.3	+50.4
13 ⁵⁰ 7	38	143	48	184	116.6	-23.8	+63.1
Means ...	...	...	35	202	118.59	-23.30	...
Group 1170. A number of small spots irregularly arranged. Only two spots remain on November 7, only one on November 8.							
Nov. 4 ²⁰ 7	59	156	32	84	194.9	+14.5	+18.8
5 ³⁹ 7	35	113	22	72	195.5	+14.1	+35.1
6 ²⁹ 6	17	54	13	40	196.0	+14.4	+47.4
7 ¹⁵ 9	9	45	9	44	196.3	+14.4	+59.2
8 ¹⁶ 1	3	18	4	28	195.4	+15.1	+71.5
Means ...	...	...	16	54	195.62	+14.50	...
Group 1171. Two very small spots on November 6, one of which disappears before November 7. The group suddenly develops on November 8 into two clusters of small spots, one of which disappears before November 9.							
Nov. 6 ²⁹ 6	2	7	2	5	101.5	+6.7	-47.1
7 ¹⁵ 9	0	7	0	5	103.1	+7.7	-34.0
8 ¹⁶ 1	5	76	3	41	102.9	+8.1	-21.0
9 ⁵¹ 8	7	29	3	14	103.9	+9.1	-2.2
Means ...	...	...	2	16	102.85	+7.90	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1172.							
Two regular spots. A number of small spots are seen between them November 9-14, and on November 16.							
1883. _a Nov. 9 ⁵ 18	16	162	18	159	48°9	-14°2	-57°2
10 ⁵ 41	159	663	117	488	48°6	-14°7	-44°0
11	No photograph.		(121	528	48°5	-14°7	-31°1)
12 ⁵ 20	224	1022	125	567	48°3	-14°7	-18°2
13 ⁵ 07	227	1301	120	692	48°1	-15°0	-5°4
14 ⁵ 52	207	1100	111	587	47°2	-15°1	+7°5
15 ⁵ 61	223	1099	126	622	47°6	-14°8	+21°2
16 ⁵ 151	120	872	73	522	47°6	-14°9	+29°0
17 ⁵ 04	85	546	68	426	48°1	-14°5	+47°3
18 ² 04	42	395	39	372	47°4	-14°6	+55°8
19 ⁴ 91	24	187	42	343	47°7	-15°0	+73°1
20 ⁴ 14	0	38	0	136	43°5	-16°5	+81°1
Means ...	...	...	80	454	47°63	-14°89	...
Group 1173.							
A large regular spot, followed on November 12 and succeeding days by another but smaller regular spot. The latter is again followed on and after November 14 by an irregular chain of small spots, which undergo frequent changes in number, shape, and area. On November 16, 17, and 18, a large portion of the principal spot separates from it, breaks up, and moves forward. Small spots are also seen between the two principal spots of the group on November 13 and 14.							
Nov. 9 ⁵ 18	60	443	85	632	37°5	-8°9	-68°6
10 ⁵ 41	144	705	131	646	36°8	-9°1	-55°8
11	No photograph.		(126	648	36°6	-9°0	-43°0)
12 ⁵ 20	201	1096	120	649	36°4	-8°9	-30°1
13 ⁵ 07	259	1378	140	742	35°7	-8°6	-17°8
14 ⁵ 52	325	1976	168	1020	33°5	-8°4	-6°2
15 ⁵ 61	447	2096	231	1083	33°8	-8°6	+7°4
16 ⁵ 151	313	2229	167	1186	34°6	-8°8	+16°0
17 ⁵ 04	424	2064	265	1294	35°9	-8°6	+35°1
18 ² 04	255	1777	185	1286	36°6	-8°7	+45°0
19 ⁴ 91	209	1279	219	1354	35°7	-9°3	+61°1
20 ⁴ 14	130	664	232	1157	35°1	-9°1	+72°7
21 ⁴ 14	0	50	0	179	30°8	-8°8	+81°6
Means ...	...	...	159	914	35°31	-8°83	...
Group 1174.							
A number of small spots, irregularly arranged. The group undergoes constant changes.							
Nov. 10 ⁵ 41	14	86	8	50	64°1	+13°6	-28°5
11	No photograph.		(20	63	65°4	+12°6	-14°2)
12 ⁵ 20	65	150	33	76	66°7	+11°5	+0°2
13 ⁵ 07	19	118	11	62	67°3	+10°9	+13°8
14 ⁵ 52	4	59	2	35	68°7	+11°3	+29°0
15 ⁵ 61	0	20	0	13	67°4	+11°6	+41°0
16 ⁵ 151	0	27	0	21	68°3	+12°0	+49°7
Means ...	...	...	11	46	66°84	+11°93	...
Group 1175.							
Two small spots.							
1883. _a Nov. 13 ⁵ 07	0	62	0	55	108°0	+18°7	+54°5
Means ...	...	...	0	55	108°0	+18°7	...
Group 1176.							
A number of small spots, measured in two clusters on November 14. On November 15, 16, and 17, the group consists of two large regular spots with a few small spots between them. These small spots are measured with the large spots on November 15 and 17. The following spot has broken up into a number of small spots on November 18.							
Nov. 13 ⁵ 07	3	31	2	16	56°5	+10°1	+3°0
14 ⁵ 52	16	160	9	84	56°8	+9°9	+17°1
15 ⁵ 61	109	907	64	534	57°3	+9°3	+30°9
16 ⁵ 151	70	784	46	511	58°2	+9°2	+39°6
17 ⁵ 04	57	399	55	380	58°9	+9°3	+58°1
18 ² 04	23	230	31	311	59°9	+8°7	+68°3
Means ...	...	...	35	306	57°93	+9°42	...
Group 1177.							
A regular spot. Several small spots are seen near it on November 16, 18, 19, 20, and 23.							
Nov. 13 ⁵ 07	0	60	0	232	331°7	-13°6	-81°8
14 ⁵ 52	47	286	64	389	332°7	-13°5	-67°0
15 ⁵ 61	118	580	105	514	332°9	-13°6	-53°5
16 ⁵ 151	74	447	56	337	332°2	-13°6	-46°4
17 ⁵ 04	128	686	76	407	332°9	-13°6	-27°9
18 ² 04	110	722	61	396	332°7	-13°4	-18°9
19 ⁴ 91	149	747	77	386	332°9	-13°8	-1°7
20 ⁴ 14	155	849	82	451	332°6	-13°8	+10°2
21 ⁴ 14	151	729	85	411	332°1	-13°8	+22°9
22 ⁴ 37	121	641	78	413	332°3	-13°8	+36°5
23 ⁴ 94	69	444	57	364	332°5	-13°8	+50°7
24 ⁴ 22	48	300	54	335	331°8	-14°0	+62°2
25 ¹ 93	13	165	22	283	331°6	-14°0	+72°2
Means ...	...	...	63	378	332°38	-13°72	...
Group 1178.							
A small faint spot.							
Nov. 16 ⁵ 151	0	9	0	21	96°8	+18°9	+78°2
Means ...	...	...	0	21	96°8	+18°9	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1179.							
A somewhat scattered group composed of several very small spots.							
1883. _d Nov. 16 ¹⁵ 1	8	62	6	48	66.4	-10.5	+47.8
17 ⁵⁰ 4	11	72	15	96	67.8	-10.4	+67.0
18 ²⁰ 4	1	28	1	57	66.5	-9.6	+74.9
Means ...	...	...	7	67	66.90	-10.17	...
Group 1180.							
A number of small spots irregularly arranged on November 16. The group increases in size on the following days, and from November 20 onwards consists mainly of four spots closely following each other. These are measured in two pairs on November 22 and 23.							
Nov. 16 ¹⁵ 1	3	37	2	21	358.6	-12.2	-20.0
17 ⁵⁰ 4	10	50	5	25	359.1	-11.9	-1.7
18 ²⁰ 4	22	101	11	53	0.5	-12.0	+8.9
19 ⁴⁹ 1	42	279	25	164	3.6	-11.9	+29.0
20 ⁴¹ 4	57	657	40	448	2.7	-12.0	+40.3
21 ⁴¹ 4	112	537	97	455	1.6	-12.1	+52.4
22 ⁴³ 7	71	632	88	797	1.5	-12.2	+65.7
23 ⁴⁹ 4	0	268	0	938	3.0	-11.9	+81.2
Means ...	...	...	34	363	1.33	-12.03	...
Group 1181.							
Two or three small spots on November 16. The group increases in size very rapidly on the three following days, and forms a large but at the same time compact group, composed of many spots, some of them large. The spots begin to break up after passing the central meridian on November 19.							
Nov. 16 ¹⁵ 1	0	75	0	60	328.8	+17.8	-49.8
17 ⁵⁰ 4	89	707	54	429	329.4	+17.5	-31.4
18 ²⁰ 4	87	871	49	488	329.8	+17.6	-21.8
19 ⁴⁹ 1	220	1355	114	703	331.2	+18.1	-3.4
20 ⁴¹ 4	180	1393	96	737	331.3	+18.0	+8.9
21 ⁴¹ 4	155	1249	87	701	331.4	+18.0	+22.2
22 ⁴³ 7	126	840	81	540	332.2	+17.7	+36.4
23 ⁴⁹ 4	87	781	60	643	332.9	+17.6	+51.1
24 ⁴² 2	64	859	77	980	333.0	+17.6	+63.4
25 ¹⁹ 3	21	523	39	960	333.4	+17.7	+74.0
Means ...	...	...	66	624	331.34	+17.76	...
Group 1182.							
A regular spot with some very small faint spots following at some distance. These latter disappear before November 22.							
Nov. 18 ²⁰ 4	9	64	15	123	276.7	+4.1	-74.9
19 ⁴⁹ 1	19	149	17	139	276.8	+3.9	-57.8
20 ⁴¹ 4	24	162	17	114	278.2	+4.0	-44.2
Group 1182—continued.							
1883. _d Nov. 21 ⁴¹ 4	12	122	7	72	276.9	+3.6	-32.3
22 ⁴³ 7	7	30	3	16	279.3	+4.0	-16.5
23 ⁴⁹ 4	4	15	2	7	279.2	+4.2	-2.6
Means ...	...	...	10	79	277.85	+3.97	...
Group 1183.							
Two small spots. The following spot disappears before November 20.							
Nov. 19 ⁴⁹ 1	0	58	0	31	313.3	-8.5	-21.3
20 ⁴¹ 4	14	38	7	20	315.4	-8.5	-7.0
Means ...	...	...	4	26	314.35	-8.50	...
Group 1184.							
A small spot. Other smaller spots are seen near it on November 20, 24, and 25.							
Nov. 20 ⁴¹ 4	0	63	0	95	253.0	-12.4	-69.4
21 ⁴¹ 4	17	42	16	40	252.5	-11.9	-56.7
22 ⁴³ 7	13	37	9	26	253.3	-11.6	-42.5
23 ⁴⁹ 4	15	37	9	22	253.1	-11.9	-28.7
24 ⁴² 2	13	89	7	48	252.7	-13.2	-16.9
25 ¹⁹ 3	6	62	3	32	252.9	-12.6	-6.5
26 ⁵⁴ 8	16	49	9	26	253.1	-12.2	+11.5
27 ⁴⁵ 2	6	14	4	8	253.6	-12.3	+24.0
Means ...	...	...	7	37	253.03	-12.26	...
Group 1185.							
Several small spots close together.							
Nov. 21 ⁴¹ 4	0	33	0	48	241.2	-17.5	-68.0
22 ⁴³ 7	0	55	0	49	242.4	-17.3	-53.4
23 ⁴⁹ 4	4	148	3	100	243.5	-17.5	-38.3
24 ⁴² 2	0	90	0	53	243.7	-17.2	-25.9
Means ...	...	...	1	63	242.70	-17.38	...
Group 1186.							
A disturbed area in which several small faint spots appear and disappear at short intervals. One spot is seen on November 22, four on November 23, two on November 24, three on November 25.							
Nov. 22 ⁴³ 7	0	7	0	9	231.5	+15.0	-64.3
23 ⁴⁹ 4	17	104	13	83	232.0	+15.6	-49.8
24 ⁴² 2	0	66	0	42	232.9	+15.3	-36.7
25 ¹⁹ 3	0	35	0	20	234.1	+16.1	-25.3
Means ...	...	...	3	39	232.63	+15.50	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 1187. A regular spot.								Group 1190—continued.							
1883. _a					°	'	°	1883. _a					°	'	°
Nov. 22 ⁴ 37	47	339	70	502	226.2	-10.4	-69.6	Nov. 29 ⁴ 41	16	34	10	20	171.6	-7.8	-31.6
23 ⁴ 494	57	366	52	333	226.1	-10.4	-55.7	30 ² 59	0	14	0	7	171.5	-8.0	-21.2
24 ⁴ 22	49	379	35	268	225.7	-10.6	-43.9	Means ...	...	...	9	25	171.28	-7.82	...
25 ¹ 93	47	426	29	263	225.4	-10.8	-34.0	Group 1191. A few faint spots irregularly arranged on November 27. The group rapidly increases in size on the following days, and on November 30 is composed of a large regular spot, followed by a train of many small spots. The small spots diminish in number and size on the following days, and have all disappeared before December 4.							
26 ⁵ 48	75	414	40	220	225.9	-10.9	-15.7	Nov. 27 ⁴ 52	0	25	0	14	206.3	+9.2	-23.3
27 ⁴ 52	54	376	27	193	225.7	-10.9	-3.9	28 ⁴ 53	31	84	16	43	207.4	+9.3	-8.9
28 ⁴ 53	41	299	21	155	225.8	-11.0	+9.5	29 ⁴ 41	58	340	29	174	207.9	+9.7	+4.7
29 ⁴ 41	28	195	15	108	226.0	-11.0	+22.8	30 ² 59	128	779	68	413	208.8	+9.9	+16.1
30 ² 59	18	123	11	76	225.8	-11.3	+33.1	Dec. 1	No photograph.	(57	368	209.6	+9.6	+29.8)	
Dec. 1	No photograph.	(8	50	227.0	-11.4	+47.3)		2 ² 24	66	462	46	323	210.3	+9.2	+43.5
2 ² 24	5	22	5	24	228.2	-11.5	+61.4	3	No photograph.	(48	284	210.5	+9.2	+58.2)	
Means ...	...	...	28	199	226.16	-10.93	...	4 ⁴ 13	29	142	50	245	210.7	+9.1	+72.9
Group 1188. A regular spot. A small spot is near it on November 24, and another from November 26 to November 30. The latter is measured with the large spot on November 28 and 29.								Means ...	...	...	39	233	208.94	+9.40	...
Nov. 22 ⁴ 37	18	126	51	357	216.5	-10.5	-79.3	Group 1192. A small spot.							
23 ⁴ 494	63	399	77	483	217.1	-10.4	-64.7	Nov. 29 ⁴ 41	0	12	0	23	129.0	-8.0	-74.2
24 ⁴ 22	58	428	50	366	216.4	-10.8	-53.2	30 ² 59	0	10	0	12	127.9	-8.0	-64.8
25 ¹ 93	47	349	33	245	216.1	-10.9	-43.3	Means ...	...	...	0	18	128.45	-8.00	...
26 ⁵ 48	76	408	43	232	216.4	-11.1	-25.2	Group 1193. A small spot.							
27 ⁴ 52	70	408	37	215	216.2	-10.7	-13.4	Nov. 30 ² 59	0	6	0	9	122.7	-12.2	-70.0
28 ⁴ 53	59	390	30	199	215.7	-11.0	-0.6	Means ...	...	...	0	9	122.7	-12.2	...
29 ⁴ 41	46	308	24	161	215.9	-10.6	+12.7	Group 1194. A small spot.							
30 ² 59	30	304	17	170	215.8	-10.6	+23.1	Dec. 2 ² 24	4	10	5	11	108.8	-24.2	-58.0
Dec. 1	No photograph.	(19	160	216.4	-10.4	+36.6)		Means ...	...	...	5	11	108.8	-24.2	...
2 ² 24	26	186	21	149	216.9	-10.2	+50.1	Group 1189. Two small spots.							
3	No photograph.	(11	139	217.4	-10.0	+65.0)		Nov. 25 ¹ 93	0	14	0	13	204.7	-10.8	-54.7
4 ⁴ 13	0	44	0	128	217.8	-9.7	+80.0	Means ...	...	...	0	13	204.7	-10.8	...
Means ...	...	...	32	231	216.51	-10.54	...	Group 1190. A small spot.							
Group 1189. Two small spots.								Group 1193. A small spot.							
Nov. 25 ¹ 93	0	14	0	13	204.7	-10.8	-54.7	Nov. 30 ² 59	0	6	0	9	122.7	-12.2	-70.0
Means ...	...	...	0	13	204.7	-10.8	...	Means ...	...	...	0	9	122.7	-12.2	...
Group 1190. A small spot.								Group 1194. A small spot.							
Nov. 26 ⁵ 48	6	34	9	53	170.6	-7.8	-71.0	Dec. 2 ² 24	4	10	5	11	108.8	-24.2	-58.0
27 ⁴ 52	11	28	11	27	171.4	-7.6	-58.2	Means ...	...	...	5	11	108.8	-24.2	...
28 ⁴ 53	22	28	16	20	171.3	-7.9	-45.0	Group 1193. A small spot.							
Group 1193. A small spot.								Group 1194. A small spot.							
Nov. 30 ² 59	0	6	0	9	122.7	-12.2	-70.0	Dec. 2 ² 24	4	10	5	11	108.8	-24.2	-58.0
Means ...	...	...	0	9	122.7	-12.2	...	Means ...	...	...	5	11	108.8	-24.2	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1195. A small spot.							
1883. _a Dec. 2 ^h 24 ^m 3 4 ^h 43 ^m	6 No photograph. 0	37 20	6 (3) 0	40 26 12	105 ^o 2 105 ^o 5 105 ^o 6	+ 8 ^o 0 + 8 ^o 2 + 8 ^o 3	-61 ^o 6 -46 ^o 9 -32 ^o 2
Means ...	...	...	3	26	105 ^o 43	+ 8 ^o 17	...
Group 1196. Two small spots.							
Dec. 6 ^h 46 ^m 7 ^h 57 ^m 8 ^h 25 ^m 9 ^h 19 ^m 10 ^h 28 ^m	0 4 5 0 0	55 57 19 19 17	0 3 3 0 0	59 40 12 11 9	49 ^o 1 52 ^o 0 49 ^o 5 49 ^o 2 49 ^o 3	+ 7 ^o 7 + 7 ^o 3 + 7 ^o 3 + 7 ^o 2 + 6 ^o 8	-61 ^o 7 -44 ^o 2 -37 ^o 8 -25 ^o 7 -11 ^o 2
Means ...	...	...	1	26	49 ^o 82	+ 7 ^o 26	...
Group 1197. Two small spots. The group increases in size as it approaches the central meridian, and on December 9 and the following days it forms two compact clusters of spots with a few smaller spots scattered in the neighbourhood. The preceding cluster coalesces before December 14 to form a regular spot, the following cluster breaks up and its component parts become scattered and diminish in size.							
Dec. 6 ^h 46 ^m 7 ^h 57 ^m 8 ^h 25 ^m 9 ^h 19 ^m 10 ^h 28 ^m 11 ^h 53 ^m 12 ^h 31 ^m 13 ^h 54 ^m 14 ^h 29 ^m 15 ^h 47 ^m 16 ^h 49 ^m 17 ^h 28 ^m	0 10 17 9 32 104 88 132 80 27 8 3	32 69 188 166 394 693 626 859 684 231 113 45	0 8 12 6 17 53 48 78 54 25 13 12	38 56 132 99 209 357 332 503 460 209 164 152	46 ^o 2 45 ^o 2 44 ^o 4 44 ^o 8 45 ^o 5 45 ^o 7 46 ^o 2 46 ^o 5 48 ^o 0 48 ^o 0 48 ^o 4 50 ^o 1	-12 ^o 9 -13 ^o 9 -14 ^o 0 -13 ^o 7 -13 ^o 1 -12 ^o 9 -13 ^o 9 -13 ^o 1 -13 ^o 1 -12 ^o 8 -12 ^o 3 -12 ^o 5	-64 ^o 6 -51 ^o 0 -42 ^o 9 -30 ^o 1 -15 ^o 0 + 1 ^o 6 +12 ^o 4 +28 ^o 9 +40 ^o 4 +55 ^o 9 +69 ^o 7 +81 ^o 7
Means ...	...	...	27	226	46 ^o 58	-13 ^o 18	...
Group 1198. A regular spot with some small attendant spots. These latter have all disappeared before December 18.							
Dec. 6 ^h 46 ^m 7 ^h 57 ^m 8 ^h 25 ^m 9 ^h 19 ^m 10 ^h 28 ^m 11 ^h 53 ^m	14 59 50 60 71 95	93 274 351 455 462 486	29 63 42 40 40 48	200 290 294 305 259 250	34 ^o 5 34 ^o 8 34 ^o 6 34 ^o 6 34 ^o 5 34 ^o 7	- 9 ^o 6 - 9 ^o 3 - 9 ^o 3 - 9 ^o 6 - 9 ^o 7 - 9 ^o 3	-76 ^o 3 -61 ^o 4 -52 ^o 7 -40 ^o 3 -26 ^o 0 - 9 ^o 4
Group 1198—continued.							
1883. _a Dec. 12 ^h 314 13 ^h 543 14 ^h 299 15 ^h 475 16 ^h 498 17 ^h 283 18 ^h 284	58 56 39 31 20 10 8	350 346 316 155 119 95 34	29 29 23 21 18 13 20	177 183 180 105 106 119 87	34 ^o 8 34 ^o 3 34 ^o 5 34 ^o 3 34 ^o 1 34 ^o 8 33 ^o 9	-10 ^o 1 - 9 ^o 8 -10 ^o 2 - 9 ^o 6 - 9 ^o 8 - 9 ^o 8 -10 ^o 3	+ 1 ^o 0 +16 ^o 7 +26 ^o 9 +42 ^o 2 +55 ^o 4 +66 ^o 4 +78 ^o 7
Means ...	...	...	32	197	34 ^o 49	- 9 ^o 72	...
Group 1199. Two small spots. The preceding spot disappears before December 9.							
Dec. 8 ^h 255 9 ^h 197	3 0	29 10	2 0	14 5	83 ^o 0 80 ^o 8	+10 ^o 5 +11 ^o 0	- 4 ^o 3 + 5 ^o 9
Means ...	...	...	1	10	81 ^o 90	+10 ^o 75	...
Group 1200. A regular spot. A number of small spots, which undergo frequent and rapid changes, appear near it on December 12 and the following days. The regular spot disappears before December 18.							
Dec. 8 ^h 255 9 ^h 197 10 ^h 287 11 ^h 538 12 ^h 314 13 ^h 543 14 ^h 299 15 ^h 475 16 ^h 498 17 ^h 283 18 ^h 284 19 ^h 280 20 ^h 307	4 4 8 32 28 43 27 8 24 24 14 5 0	34 40 97 120 206 237 187 78 211 243 207 97 15	12 6 7 21 17 23 14 4 14 15 11 6 0	117 56 86 78 120 125 96 40 118 152 161 105 26	5 ^o 7 6 ^o 1 5 ^o 5 5 ^o 9 5 ^o 3 4 ^o 0 4 ^o 1 4 ^o 8 4 ^o 8 4 ^o 4 4 ^o 8 4 ^o 8 2 ^o 4	-12 ^o 0 -11 ^o 8 -11 ^o 7 -11 ^o 3 -11 ^o 5 -11 ^o 2 -10 ^o 9 -10 ^o 7 - 8 ^o 6 - 8 ^o 6 - 8 ^o 1 - 7 ^o 8 - 8 ^o 2	-81 ^o 6 -68 ^o 8 -55 ^o 0 -38 ^o 2 -28 ^o 5 -13 ^o 6 - 3 ^o 5 +12 ^o 7 +26 ^o 1 +36 ^o 0 +49 ^o 6 +62 ^o 7 +73 ^o 9
Means ...	...	...	12	98	4 ^o 82	-10 ^o 18	...
Group 1201. Two small spots. Fresh spots appear, and on December 12, when on the central meridian, the group is composed of a very great number of small spots. It diminishes rapidly after passing the central meridian.							
Dec. 9 ^h 197 10 ^h 287 11 ^h 538 12 ^h 314 13 ^h 543 14 ^h 299	2 6 58 15 25 1	16 70 233 193 83 34	2 4 30 8 14 0	11 41 122 99 43 19	31 ^o 3 29 ^o 9 30 ^o 2 30 ^o 7 31 ^o 0 31 ^o 8	+11 ^o 2 +10 ^o 8 +10 ^o 6 +10 ^o 3 +10 ^o 4 +10 ^o 8	-43 ^o 6 -30 ^o 6 -13 ^o 9 - 3 ^o 1 +13 ^o 4 +24 ^o 2
Means ...	...	...	10	56	30 ^o 82	+10 ^o 68	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.						
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.									
Group 1202.								Group 1205.													
A regular spot. Several small spots appear following it on December 12. These disappear before December 15, on which day several small spots are seen to the north of the principal spot. These last are measured with the principal spot on December 16.								A regular spot. Smaller spots are seen near it on December 18, 20, and 22.													
1883. _a					°	°	°	1883. _a					°	°	°						
Dec. 9 ^h 19 ^m	14	62	36	156	356.6	+12.2	-78.3	Dec. 11 ^h 53 ^m 8	22	87	37	148	332.9	+20.4	-71.2						
10 ^h 28 ^m 7	29	213	34	252	356.3	+12.1	-64.2	12 ^h 31 ^m 4	19	116	21	131	332.4	+20.4	-61.4						
11 ^h 53 ^m 8	125	445	93	333	357.7	+12.7	-46.4	13 ^h 54 ^m 3	22	161	17	123	331.8	+20.0	-45.8						
12 ^h 31 ^m 4	80	450	51	287	357.9	+12.5	-35.9	14 ^h 29 ^m 9	41	180	27	121	331.8	+20.7	-35.8						
13 ^h 54 ^m 3	93	586	51	320	358.5	+12.3	-19.1	15 ^h 47 ^m 5	44	230	25	132	331.6	+20.8	-20.5						
14 ^h 29 ^m 9	74	413	39	215	359.8	+12.3	-7.8	16 ^h 49 ^m 8	34	198	18	108	331.3	+20.8	-7.4						
15 ^h 47 ^m 5	52	341	27	177	1.7	+12.6	+9.6	17 ^h 28 ^m 3	42	231	23	126	331.4	+21.1	+3.0						
16 ^h 49 ^m 8	64	328	36	184	1.9	+13.3	+23.2	18 ^h 28 ^m 4	24	204	14	116	331.3	+21.3	+16.1						
17 ^h 28 ^m 3	60	417	38	264	3.1	+13.2	+34.7	19 ^h 28 ^m 0	24	181	15	113	330.9	+21.4	+28.8						
18 ^h 28 ^m 4	39	211	31	166	4.1	+12.8	+48.9	20 ^h 30 ^m 7	24	204	18	152	331.3	+21.6	+42.8						
19 ^h 28 ^m 0	18	114	20	127	4.4	+12.2	+62.3	21 ^h 49 ^m 3	17	58	17	58	329.8	+21.2	+56.9						
20 ^h 30 ^m 7	9	49	20	105	4.2	+12.3	+75.7	22 ^h 26 ^m 8	6	85	8	130	332.5	+22.8	+69.8						
Means	40	216	0.52	+12.54	...	23 ^h 18 ^m 4	0	25	0	72	328.9	+21.2	+78.3						
Group 1203.								Group 1206.													
A very small faint spot.								A small faint spot. Several other small spots appear near it on December 15, and others on December 17. The group is measured together as a whole on December 15 and 16.													
Dec. 10 ^h 28 ^m 7	0	3	0	2	109.6	-25.2	+49.1	Dec. 11 ^h 53 ^m 8	0	24	0	40	331.7	-16.3	-72.4						
Means	0	2	109.6	-25.2	...	12 ^h 31 ^m 4	5	38	5	43	331.1	-16.5	-62.7						
Group 1204.								13 ^h 54 ^m 3	15	39	12	30	330.6	-16.9	-47.0						
Two spots, which are measured together on December 10 and 11. On December 13 they have broken up into a line of small faint spots which are measured together, and of these only one remains on December 14. The group is not seen on December 15, but re-appears as a small faint spot on December 16. Several other small spots appear on December 17, and form an irregular scattered group.																					

A small spot followed at a little distance by a small cluster of faint spots. This cluster disappears before December 17.

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1209. A small faint spot.							
1883. d					°	°	°
Dec. 14.299	0	4	0	2	345.1	-11.4	-22.5
15.475	0	7	0	4	345.6	-10.6	-6.5
Means ...	...	...	0	3	345.35	-11.00	...
Group 1210. A small faint spot.							
Dec. 17.283	0	9	0	5	314.0	-16.9	-14.4
Means ...	...	...	0	5	314.0	-16.9	...
Group 1211. Two small clusters of spots, preceded on December 19 by a very small spot. The following cluster disappears before December 21.							
Dec. 19.280	6	77	3	41	282.1	-6.3	-20.0
20.307	15	86	7	43	283.5	-6.3	-5.0
21.493	3	22	2	11	285.8	-5.2	+12.9
22.268	6	25	3	14	285.9	-5.1	+23.2
Means ...	...	...	4	27	284.33	-5.73	...
Group 1212. An extensive group of very irregular character, composed of a large spot of irregular outline surrounded by a great number of small spots. The group diminishes in size after December 21, and suffers continual change. On December 26 and following days the group consists of a great number of small spots irregularly distributed over a considerable area.							
Dec. 19.280	18	311	38	632	226.3	-8.7	-75.8
20.307	43	802	47	868	226.1	-8.9	-62.4
21.493	99	1235	72	892	226.7	-8.6	-46.2
22.268	82	1303	50	808	226.5	-8.9	-36.2
23.184	76	1105	42	610	226.9	-8.9	-23.7
24.290	49	983	25	503	227.2	-9.0	-8.8
25.224	39	1107	20	562	228.6	-8.9	+4.8
26.187	61	750	33	399	228.5	-8.5	+17.4
27.207	35	504	21	299	229.5	-8.9	+31.9
28.167	22	258	16	181	229.7	-8.7	+44.7
29.239	0	34	0	34	231.1	-8.9	+60.3
Means ...	...	...	33	526	227.92	-8.81	...
Group 1213. A regular spot. It gradually diminishes in size from day to day, and breaks up into small spots on December 27. Occasionally a very faint spot is seen in the neighbourhood of the principal spot.							
1883. d					°	°	°
Dec. 19.280	6	95	24	364	219.3	-12.7	-82.8
20.307	20	211	28	303	219.0	-13.7	-69.5
21.493	39	319	34	277	218.5	-13.4	-54.4
22.268	46	386	33	277	217.8	-13.3	-44.9
23.184	83	412	50	248	218.1	-12.9	-32.5
24.290	69	414	37	221	218.5	-12.8	-17.5
25.224	28	329	14	168	219.1	-12.8	-4.7
26.187	39	275	20	143	219.5	-12.8	+8.4
27.207	27	130	15	72	219.6	-12.7	+22.0
28.167	11	32	7	20	219.5	-12.5	+34.5
Means ...	...	...	26	209	218.89	-12.96	...
Group 1214. Two spots on December 20. Others appear on December 21 and 22, and the group forms a wavy line.							
Dec. 20.307	18	91	10	49	270.8	-17.6	-17.7
21.493	33	109	17	56	271.6	-16.8	-1.3
22.268	20	164	11	86	272.3	-16.6	+9.6
23.184	25	170	14	103	273.2	-17.3	+22.6
24.290	15	115	10	76	274.4	-16.8	+38.4
25.224	9	75	7	62	275.4	-16.9	+51.6
26.187	11	47	13	54	275.0	-16.4	+63.9
Means ...	...	...	12	69	273.24	-16.91	...
Group 1215. A regular spot. A faint spot is seen following it on December 24, and another on December 28. The large spot divides into two portions on December 26 and 27, and the smaller portion disappears before December 29.							
Dec. 20.307	12	92	27	207	211.7	+8.3	-76.8
21.493	43	194	45	206	211.7	+8.4	-61.2
22.268	54	255	45	212	210.5	+8.1	-52.2
23.184	67	329	45	218	211.0	+8.1	-39.6
24.290	60	382	34	216	210.6	+8.1	-25.4
25.224	68	346	35	180	210.9	+8.0	-12.9
26.187	55	378	28	194	211.0	+8.2	-0.1
27.207	53	275	28	144	211.0	+8.2	+13.4
28.167	37	217	21	124	211.3	+8.4	+26.3
29.239	23	174	15	117	211.1	+8.6	+40.3
Means ...	...	...	32	182	211.08	+8.24	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1216.								
A large regular spot, with a long stream of small spots. The small spots undergo frequent changes.								
1883. ^d								
Dec. 20 ³⁰ 7	0	93	0	356	205 ⁸	- 8 ⁶	- 82 ⁷	
21 ⁴⁹ 3	122	621	168	839	204 ⁶	- 8 ⁷	- 68 ³	
22 ²⁶ 8	98	1164	96	1199	201 ⁸	- 9 ¹	- 60 ⁹	
23 ¹⁸ 4	208	1895	154	1465	203 ⁰	- 9 ³	- 47 ⁶	
24 ²⁹ 0	227	1794	135	1084	203 ⁰	- 9 ⁴	- 33 ⁰	
25 ²² 4	258	2081	139	1129	203 ⁰	- 9 ²	- 20 ⁸	
26 ¹⁸ 7	380	1912	196	984	203 ²	- 8 ⁹	- 7 ⁹	
27 ²⁰ 7	325	1914	164	971	203 ⁷	- 8 ⁹	+ 6 ¹	
28 ¹⁶ 7	298	1614	159	862	204 ⁰	- 8 ⁸	+ 19 ⁰	
29 ²³ 9	239	1241	145	746	204 ⁰	- 8 ⁷	+ 33 ²	
30	No photograph.	(111	573	201 ⁷	- 9 ²	+ 44 ⁰		
31	No photograph.	(78	400	199 ³	- 9 ⁷	+ 54 ⁸		
1884.								
Jan. 1	No photograph.	(45	227	196 ⁹	- 10 ¹	+ 65 ⁵		
2 ²³ 2	5	26	11	54	194 ⁶	- 10 ⁶	+ 76 ³	
Means	...	...	114	778	202 ⁰⁴	- 9 ²³	...	
Group 1217.								
A regular spot. Small spots are seen near it on December 21, 24, 25, 26, and 29.								
Dec. 21 ⁴⁹ 3	21	78	41	149	198 ¹	+ 2 ⁵	- 74 ⁸	
22 ²⁶ 8	29	171	35	204	197 ⁷	+ 2 ¹	- 65 ⁰	
23 ¹⁸ 4	47	234	38	191	198 ⁵	+ 2 ⁰	- 52 ¹	
24 ²⁹ 0	61	338	38	213	199 ¹	+ 1 ⁷	- 36 ⁹	
25 ²² 4	54	354	30	194	200 ⁷	+ 1 ⁶	- 23 ¹	
26 ¹⁸ 7	86	463	44	238	200 ⁵	+ 1 ⁹	- 10 ⁶	
27 ²⁰ 7	65	401	33	201	200 ⁷	+ 1 ⁹	+ 3 ¹	
28 ¹⁶ 7	65	373	34	195	201 ⁰	+ 1 ⁷	+ 16 ⁰	
29 ²³ 9	51	351	30	205	200 ⁸	+ 1 ⁹	+ 30 ⁰	
30	No photograph.	(30	193	200 ⁸	+ 1 ⁹	+ 43 ²		
31	No photograph.	(30	182	200 ⁹	+ 1 ⁹	+ 56 ⁴		
1884.								
Jan. 1	No photograph.	(30	170	201 ⁰	+ 1 ⁹	+ 69 ⁵		
2 ²³ 2	7	39	30	158	201 ⁰	+ 1 ⁹	+ 82 ⁷	
Means	...	...	34	192	200 ⁰⁶	+ 1 ⁹²	...	
Group 1218.								
A regular spot with several smaller spots near it. The smaller spots undergo several changes, and have all disappeared before December 28. A very small spot is seen near the large spot on December 29.								
Dec. 21 ⁴⁹ 3	7	75	18	189	194 ³	- 17 ¹	- 78 ⁶	
22 ²⁶ 8	30	168	44	245	192 ⁹	- 16 ³	- 69 ⁸	
23 ¹⁸ 4	55	210	51	197	193 ⁷	- 16 ⁹	- 56 ⁹	
24 ²⁹ 0	65	337	46	238	193 ¹	- 17 ⁰	- 42 ⁹	
25 ²² 4	74	370	43	222	193 ⁴	- 16 ⁴	- 30 ⁴	
26 ¹⁸ 7	79	446	43	242	193 ⁵	- 16 ⁸	- 17 ⁶	
27 ²⁰ 7	71	386	37	199	194 ²	- 16 ⁷	- 3 ⁴	
Group 1218—continued.								
1883. ^d								
Dec. 28 ¹⁶ 7	53	298	28	155	194 ⁷	- 16 ⁴	+ 9 ⁷	
29 ²³ 9	50	289	28	163	194 ⁷	- 16 ²	+ 23 ⁹	
30	No photograph.	(26	142	194 ⁶	- 16 ²	+ 36 ⁹		
31	No photograph.	(24	122	194 ⁵	- 16 ³	+ 50 ⁰		
1884.								
Jan. 1	No photograph.	(21	101	194 ⁴	- 16 ⁴	+ 63 ⁰		
2 ²³ 2	9	40	19	80	194 ³	- 16 ⁴	+ 76 ⁰	
Means	...	...	33	177	194 ⁰²	- 16 ⁵⁵	...	
Group 1219.								
Three small faint spots.								
Dec. 23 ¹⁸ 4	6	95	3	49	259 ⁵	- 13 ⁴	+ 8 ⁹	
24 ²⁹ 0	0	4	0	2	257 ⁵	- 15 ³	+ 21 ⁵	
25 ²² 4	5	23	3	14	256 ⁸	- 15 ⁰	+ 33 ⁰	
26 ¹⁸ 7	10	14	7	11	257 ⁶	- 14 ²	+ 46 ⁵	
27 ²⁰ 7	4	15	4	15	259 ⁴	- 13 ²	+ 61 ⁸	
Means	...	...	3	18	258 ¹⁶	- 14 ²²	...	
Group 1220.								
Two small spots, measured together on December 24. They move apart on the following days, and the following spot disappears before December 27.								
Dec. 24 ²⁹ 0	0	34	0	35	177 ⁶	- 23 ³	- 58 ⁴	
25 ²² 4	13	91	10	68	179 ¹	- 23 ³	- 44 ⁷	
26 ¹⁸ 7	7	59	5	36	180 ⁷	- 22 ⁷	- 30 ⁴	
27 ²⁰ 7	7	33	4	18	181 ⁷	- 22 ²	- 15 ⁹	
28 ¹⁶ 7	3	11	1	6	181 ⁸	- 22 ²	- 3 ²	
29 ²³ 9	0	5	0	3	181 ⁴	- 21 ⁷	+ 10 ⁶	
Means	...	...	3	28	180 ³⁸	- 22 ⁵⁷	...	
Group 1221.								
A very small faint spot.								
Dec. 25 ²² 4	0	2	0	3	151 ⁹	- 12 ⁶	- 71 ⁹	
26 ¹⁸ 7	1	4	1	4	149 ³	- 13 ¹	- 61 ⁸	
Means	...	...	1	4	150 ⁶⁰	- 12 ⁸⁵	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1222. A very small faint spot.							
1883. _d Dec. 28.167	0	5	0	6	250.7	- 6.9	+ 65.7
Means ...	...	...	0	6	250.7	- 6.9	...
Group 1223. A small faint spot on December 28. The group has greatly increased in size before December 29, and appears as a number of small spots scattered over a con- siderable area, the preceding spot being the largest.							
Dec. 28.167	0	5	0	3	181.0	- 13.4	- 4.0
29.239	19	217	10	114	182.3	- 13.6	+ 11.5
30	No photograph.	(11	154	182.8	- 14.0	+ 25.1)	
31	No photograph.	(13	194	183.3	- 14.3	+ 38.7)	
1884. Jan. 1	No photograph.	(15	234	183.7	- 14.7	+ 52.3)	
2.232	14	223	16	274	184.2	- 15.0	+ 65.9
3.149	6	184	13	431	184.4	- 15.0	+ 78.2
Means ...	...	...	11	201	183.10	- 14.29	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1224. An irregular cluster of small spots.							
1883. _d Dec. 28.167	20	73	10	37	189.0	- 8.3	+ 4.0
29.239	14	170	8	90	190.5	- 8.3	+ 19.7
Means ...	...	...	9	63	189.75	- 8.30	...
Group 1225. A regular spot. It has broken up before January 2, and only two or three very small faint spots remain to mark its place.							
Dec. 28.167	9	40	14	62	113.7	- 15.0	- 71.3
29.239	6	41	5	39	113.4	- 14.7	- 57.4
30	No photograph.	(4	33	113.5	- 14.7	- 44.1)	
31	No photograph.	(2	28	113.7	- 14.8	- 30.9)	
1884. Jan. 1	No photograph.	(1	22	113.9	- 14.9	- 17.6)	
2.232	0	32	0	16	114.0	- 14.9	- 4.3
3.149	0	26	0	13	114.3	- 16.2	+ 8.1
4.397	0	10	0	5	114.9	- 14.1	+ 25.1
5.314	0	4	0	2	115.2	- 15.3	+ 37.5
Means ...	...	...	3	24	114.07	- 14.96	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1226.								
Two small spots, <i>a</i> and <i>b</i> ; the following spot is not seen on January 3.								
1884. _a Jan.	2'232	4	21	3	15	166°5	— 9°1	+48°2
	3'149	5	9	5	9	168°4	— 9°1	+62°2
Means	...	...	...	4	12	167°45	— 9°10	...
Group 1227.								
Several small spots, measured in two clusters on January 2.								
Jan.	2'232	20	121	12	74	151°9	+ 8°0	+33°6
	3'149	14	122	10	92	153°3	+ 7°5	+47°1
	4'397	0	36	0	44	154°8	+ 6°8	+65°0
	5'314	0	4	0	13	158°1	+ 5°8	+80°4
Means	...	...	...	6	56	154°53	+ 7°03	...
Group 1228.								
Three small spots on January 2. Two clusters of very small spots on January 3.								
Jan.	2'232	7	50	4	26	129°3	+ 8°6	+11°0
	3'149	5	25	3	14	131°3	+ 8°7	+25°1
Means	...	...	...	4	20	130°30	+ 8°65	...
Group 1229.								
A wedge-shaped and somewhat compact group of small spots on January 2. The group undergoes many changes on the succeeding days, the spots in the middle of the group disappearing before January 5, leaving two small clusters.								
Jan.	2'232	5	127	3	70	99°1	+10°8	—19°2
	3'149	14	105	7	55	100°0	+11°1	— 6°2
	4'397	10	80	6	42	101°0	+11°1	+11°2
	5'314	11	96	6	53	99°7	+11°9	+22°0
	6'200	5	69	3	43	100°2	+11°2	+34°2
	7'186	10	102	9	81	101°9	+11°1	+48°9
	8'307	3	49	3	58	102°0	+11°3	+63°7
	9'283	4	30	9	66	101°3	+11°6	+75°8
Means	...	...	...	6	59	100°65	+11°26	...
Group 1230.								
A small regular spot, <i>a</i> , followed by several small spots. The latter disappear before January 5.								
Jan.	2'232	9	58	7	47	69°2	+11°9	—49°1
	3'149	5	44	3	28	71°1	+12°3	—35°1
	4'397	6	30	4	16	70°4	+12°3	—19°4
	5'314	7	17	4	9	71°9	+12°6	— 5°8
	6'200	9	21	5	11	72°2	+12°7	+ 6°2
Means	...	...	...	5	22	70°96	+12°36	...

Date, Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1231.								
A small spot, <i>a</i> , on January 2. Several smaller spots are seen following it on January 3, and again on January 5 and 6. Other spots precede it on January 7, and represent the group on January 8 and 9, when <i>a</i> has disappeared. These all disappear before January 10, and are replaced by two spots, <i>b</i> and <i>c</i> , of considerable size, of which <i>c</i> disappears before January 12.								
1884. _a Jan.	2'232	2	12	4	24	42°5	—13°3	—75°8
	3'149	5	28	5	31	43°5	—13°7	—62°7
	4'397	1	12	1	9	44°9	—13°9	—44°9
	5'314	4	19	3	12	45°0	—13°9	—32°7
	6'200	7	22	4	12	44°9	—13°5	—21°1
	7'186	0	28	0	14	48°3	—11°6	—4°7
	8'307	12	47	6	25	50°7	—11°1	+12°4
	9'283	5	45	3	25	47°9	—12°5	+22°4
	10'275	19	124	12	77	48°2	—12°9	+35°8
	11'488	63	222	51	180	48°1	—12°8	+51°7
	12'495	12	36	16	47	50°3	—14°0	+67°2
	13'150	4	39	7	78	50°8	—13°1	+76°3
Means	...	...	...	9	45	47°09	—13°03	...
Group 1232.								
A line group, composed of two larger spots, <i>a</i> and <i>b</i> , with a number of small spots between them. The group undergoes various changes, and by January 13 forms a compact cluster composed of a number of distinct spots.								
Jan.	2'232	2	71	8	258	37°1	+11°1	—81°2
	3'149	6	215	8	347	35°6	+11°2	—70°6
	4'397	37	496	32	446	35°3	+11°1	—54°5
	5'314	60	720	42	513	35°1	+11°3	—42°6
	6'200	76	821	44	497	35°2	+11°4	—30°8
	7'186	83	921	45	503	35°3	+11°2	—17°7
	8'307	63	645	33	337	36°5	+11°1	— 1°8
	9'283	49	512	27	272	37°5	+11°1	+12°0
	10'275	37	838	21	479	37°3	+10°6	+24°9
	11'488	150	688	102	472	37°1	+10°4	+40°7
	12'495	16	587	15	529	37°6	+10°3	+54°5
	13'150	27	287	33	345	38°2	+10°8	+63°7
	14'260	5	92	14	269	39°0	+10°5	+79°1
Means	...	...	...	33	405	36°68	+10°93	...
Group 1233.								
A small regular spot.								
Jan.	3'149	7	15	13	28	31°3	—10°7	—74°9
	4'397	0	20	0	20	30°3	—10°6	—59°5
	5'314	4	28	3	21	30°5	—10°7	—47°2
	6'200	7	36	4	22	30°9	—10°3	—35°1
	7'186	3	26	2	14	31°0	—10°4	—22°0
	8'307	4	32	2	16	31°6	—10°9	— 6°7
	9'283	3	17	1	9	31°8	—10°9	+ 6°3
	10'275	0	8	0	4	31°8	—10°9	+19°4
Means	...	...	...	3	17	31°15	—10°68	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1234.							
Two small faint spots. The following spot has divided into two portions by January 5, which are, however, measured together.							
1884. _a							
Jan. 4 ^h 397	0	12	0	7	80°0	-20°7	-9°8
5 ^h 314	2	12	1	6	82°1	-20°2	+4°4
Means ...	...	...	1	7	81°05	-20°45	...
Group 1235.							
A very fine group following Group 1232 in nearly the same latitude. It consists at first of a large regular spot, <i>a</i> , which from January 4 to January 10 is completely detached from the rest of the group, followed by a long stream of spots. The last spots of the group coalesce to form on January 7 a large spot, <i>b</i> . The spots between <i>a</i> and <i>b</i> change rapidly in number, arrangement, and area, closing up to <i>a</i> and leaving <i>b</i> behind, until on January 12 <i>b</i> is as completely isolated as <i>a</i> was on January 4.							
Jan. 4 ^h 397	7	264	10	1097	7°9	+15°5	-81°9
5 ^h 314	54	619	68	873	10°5	+15°4	-67°2
6 ^h 200	90	1011	80	944	11°4	+15°4	-54°6
7 ^h 186	212	1528	155	1109	10°8	+15°5	-42°2
8 ^h 307	161	1722	97	1034	11°9	+15°1	-26°4
9 ^h 283	181	1563	98	860	11°7	+15°6	-13°8
10 ^h 275	225	1854	121	992	12°8	+15°1	+0°4
11 ^h 488	286	2168	161	1215	13°8	+14°5	+17°4
12 ^h 495	283	1770	179	1118	15°2	+14°2	+32°1
13 ^h 150	236	1486	167	1066	15°8	+14°2	+41°3
14 ^h 260	67	1001	65	970	15°8	+14°2	+55°9
15 ^h 164	54	529	70	755	15°0	+14°7	+67°1
Means ...	...	...	106	1003	12°72	+14°95	...
Group 1236.							
Several very small spots on January 5. The group has greatly increased in size by January 6. On January 7 only one large regular spot is seen close to the sun's limb.							
Jan. 5 ^h 314	0	14	0	13	135°6	-17°2	+57°9
6 ^h 200	13	149	17	207	135°0	-16°6	+69°0
7 ^h 186	5	58	12	146	132°2	-17°8	+79°2
Means ...	...	...	10	122	134°27	-17°20	...
Group 1237.							
A large regular spot. Small spots are seen in its immediate neighbourhood from day to day. These are usually measured with the large spot, but on January 10, 11, 12 and 13 they are measured separately.							
Jan. 5 ^h 314	4	108	15	392	355°1	-10°9	-82°6
6 ^h 200	32	327	48	496	354°8	-10°9	-71°2
7 ^h 186	60	635	57	599	355°0	-11°1	-58°0
8 ^h 307	81	905	56	629	355°0	-11°2	-43°3
9 ^h 283	77	1079	45	631	354°8	-11°3	-30°7
10 ^h 275	110	1058	58	557	355°0	-11°0	-17°4
Group 1237—continued.							
1884. _a							
Jan. 11 ^h 488	193	967	97	489	355°2	-10°9	-1°2
12 ^h 495	83	755	43	392	355°6	-10°8	+12°5
13 ^h 150	155	763	84	412	356°0	-11°0	+21°5
14 ^h 260	70	624	43	387	356°1	-10°9	+36°2
15 ^h 164	54	403	41	306	356°7	-10°7	+48°8
16	No photograph.	(38	258	357°0	-10°5	+62°8)	
17 ^h 260	16	100	34	210	357°2	-10°2	+76°8
Means ...	...	...	51	443	355°65	-10°88	...
Group 1238.							
Two small faint spots.							
Jan. 6 ^h 200	0	15	0	8	54°8	-6°3	-11°2
Means ...	...	...	0	8	54°8	-6°3	...
Group 1239.							
Two very small spots.							
Jan. 6 ^h 200	0	11	0	7	31°9	-13°6	-34°1
Means ...	...	...	0	7	31°9	-13°6	...
Group 1240.							
A small faint spot. A second appears near it on January 7, and others on January 8. On January 8 and the succeeding days, the group consists of several small spots in a compact cluster. It is measured in two parts on January 10.							
Jan. 6 ^h 200	0	4	0	13	344°5	-12°8	-81°5
7 ^h 186	0	15	0	21	345°1	-12°1	-67°9
8 ^h 307	0	51	0	44	344°0	-12°5	-54°3
9 ^h 283	0	49	0	32	344°9	-12°1	-40°6
10 ^h 275	0	79	0	46	343°5	-12°5	-28°9
11 ^h 488	2	36	1	19	344°8	-11°3	-11°6
Means ...	...	...	0	29	344°47	-12°22	...
Group 1241.							
A regular spot. It divides into two parts, which are measured together, on January 8. It breaks up further on January 9, and on January 11 only one small spot remains.							
Jan. 6 ^h 200	3	31	13	135	342°0	-9°3	-84°0
7 ^h 186	12	53	18	78	342°5	-9°4	-70°5
8 ^h 307	2	53	2	47	342°7	-9°9	-55°6
9 ^h 283	4	25	3	17	342°5	-9°9	-43°0
10 ^h 275	4	22	2	13	342°5	-9°8	-29°9
11 ^h 488	15	28	8	15	341°8	-9°1	-14°6
Means ...	...	...	8	51	342°33	-9°57	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1242. A small spot.							
1884. ^a Jan. 7.186	0	5	0	11	128.1	+ 8.0	+75.1
Means ...	...	...	0	11	128.1	+ 8.0	...
Group 1243. A small regular spot, <i>a</i> , followed by several smaller spots. The regular spot alone remains on January 11.							
Jan. 7.186	2	30	4	50	342.1	+13.1	-70.9
8.307	20	110	19	105	342.1	+12.6	-56.2
9.283	14	132	10	92	343.5	+12.8	-42.0
10.275	19	112	11	65	346.1	+12.4	-26.3
11.488	19	53	10	28	347.3	+12.3	- 9.1
12.495	16	49	8	26	347.6	+12.1	+ 4.5
13.150	16	51	9	27	348.1	+12.2	+13.6
14.260	8	12	5	7	348.5	+12.6	+28.6
15.164	6	15	4	10	348.6	+12.6	+40.7
Means ...	...	...	9	46	345.99	+12.52	...
Group 1244. A small faint spot. Three others are seen with it on January 9, the four being arranged in two pairs. On January 10 the four spots are arranged in a straight line. The two pairs of spots have moved away from each other by January 11.							
Jan. 8.307	0	4	0	4	342.0	-24.2	-56.3
9.283	0	26	0	19	341.7	-24.0	-43.8
10.275	5	76	3	47	342.2	-24.1	-30.2
11.488	20	57	12	31	340.5	-24.6	-15.9
Means ...	...	...	4	25	341.60	-24.23	...
Group 1245. A small spot.							
Jan. 8.307	0	2	0	3	336.9	-27.7	-61.4
Means ...	...	...	0	3	336.90	-27.70	...
Group 1246. A small regular spot, <i>a</i> . Two small spots, which are measured together, follow it on January 9. They move apart on the following days and are measured separately as <i>b</i> and <i>c</i> . They undergo several changes in size; position and shape.							
1884. ^a Jan. 8.307	2	14	3	29	323.6	+10.8	-74.7
9.283	0	35	0	43	320.7	+10.7	-64.8
10.275	5	34	4	27	322.5	+10.6	-49.9
11.488	35	132	22	85	320.9	+10.6	-35.5
12.495	0	105	0	59	319.9	+10.6	-23.2
13.150	11	37	7	20	318.8	+11.8	-15.7
14.260	1	4	1	2	316.9	+12.6	- 3.0
Means ...	...	...	5	38	320.47	+11.10	...
Group 1247. Two small spots. They are measured together on January 9, but separately on January 10, when they are somewhat further apart.							
Jan. 9.283	0	20	0	12	350.1	+11.3	-35.4
10.275	0	7	0	4	350.6	+11.4	-21.8
Means ...	...	...	0	8	350.35	+11.35	...
Group 1248. Three small spots. The first two spots are measured together.							
Jan. 10.275	2	33	2	28	64.6	+10.3	+52.2
Means ...	...	...	2	28	64.6	+10.3	...
Group 1249. Two small spots measured together on January 14.							
Jan. 13.150	9	22	10	26	39.6	- 6.3	+65.1
14.260	0	12	0	28	37.9	- 6.7	+78.0
Means ...	...	...	5	27	38.75	- 6.50	...
Group 1250. A number of very small faint spots scattered over a considerable area. Only one spot remains on January 15.							
Jan. 13.150	2	20	1	9	347.8	-10.0	+13.3
14.260	4	110	2	63	348.6	-11.0	+28.7
15.164	0	5	0	3	346.0	- 9.8	+38.1
Means ...	...	...	2	25	347.47	-10.27	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1251.								Group 1254—continued.							
Two small faint spots on January 13. The group rapidly increases in size. On January 14 it is composed of nine small spots, measured in two clusters. On January 15 these have coalesced to form a large and irregular spot. This breaks up into a number of spots before January 17, and the group then consists of a large spot, closely followed by another large spot, <i>b</i> , and a number of small spots around them. The group undergoes further changes, but retains the same general character until January 24, by which date all the small spots have disappeared.								1884. ^d							
Jan. 13 ¹⁵⁰	0	7	0	16	257.3	-17.7	-77.2	Jan. 21 ⁴⁴³	23	81	11	41	223.2	-0.3	-2.1
14 ²⁶⁰	8	90	9	101	256.5	-17.4	-63.4	22 ²⁶²	6	50	3	25	223.4	-0.4	+8.8
15 ¹⁶⁴	113	812	93	666	256.0	-18.1	-51.9	23 ¹³⁰	10	35	6	18	223.6	-0.1	+20.5
16	No photograph.	(92	821	255.6	-18.2	-38.6)		24 ⁵¹⁵	4	20	3	13	223.2	-0.1	+38.4
17 ²⁶⁰	163	1714	92	977	255.1	-18.3	-25.3	25 ⁴⁴⁸	0	24	0	19	223.5	-0.5	+50.8
18 ³⁵⁶	217	1617	114	842	256.3	-17.7	-9.7	Means	...	...	6	33	222.30	-0.30	...
19 ³²²	117	1290	60	661	255.3	-17.8	+2.1	Group 1255.							
20 ⁵⁴⁶	205	1287	110	698	254.8	-18.2	+17.7	A large regular spot, <i>a</i> . A second spot, <i>b</i> , is seen on January 29 after <i>a</i> has passed out of sight at the west limb. On January 28 this group and Group 1263 are measured on a different photograph from that on which the remaining spots are measured.							
21 ⁴⁴³	87	1166	53	694	255.7	-18.3	+30.4	Jan. 17 ²⁶⁰	68	258	111	423	207.6	-8.1	-72.8
22 ²⁶²	61	850	42	575	255.8	-17.9	+41.2	18 ³⁵⁶	78	449	72	416	208.3	-8.4	-57.7
23 ¹³⁰	57	547	48	454	255.9	-18.2	+52.8	19 ³²²	113	545	80	386	207.7	-8.2	-45.5
24 ⁵¹⁵	28	168	41	254	255.9	-18.4	+71.1	20 ⁵⁴⁶	169	643	98	371	207.5	-8.5	-29.6
25 ⁴⁴⁸	0	49	0	199	257.1	-18.2	+84.4	21 ⁴⁴³	158	790	83	415	207.8	-8.5	-17.5
Means	...	...	58	535	255.95	-18.03	...	22 ²⁶²	133	761	68	386	207.9	-8.6	-6.7
Group 1252.								23 ¹³⁰	137	734	69	367	208.1	-8.6	+5.0
A small spot, <i>a</i> , on January 15. Two others, <i>b</i> and <i>c</i> , follow it on January 17, but <i>b</i> disappears before January 18, <i>c</i> before January 19. A fourth spot, <i>d</i> , appears on January 18; spots <i>a</i> and <i>d</i> move away from each other.								24 ⁵¹⁵	120	656	65	358	208.0	-8.5	+23.2
Jan. 15 ¹⁶⁴	3	5	2	3	297.2	+18.1	-10.7	25 ⁴⁴⁸	97	582	60	360	208.6	-8.3	+35.9
16	No photograph.	(8	48	296.9	+18.5	+2.7)		26	No photograph.	(72	364	209.0	-8.6	+49.8)	
17 ²⁶⁰	25	162	14	93	296.5	+18.8	+16.1	27 ⁵⁰⁰	77	332	85	369	209.5	-8.9	+63.7
18 ³⁵⁶	14	82	9	54	298.6	+18.8	+32.6	28 ⁴¹¹	41	173	78	334	209.3	-8.8	+75.7
19 ³²²	6	52	5	42	299.3	+18.6	+46.1	29 ³⁶²	2	18	11	94	207.2	-11.0	+86.1
20 ⁵⁴⁶	4	61	4	72	298.5	+18.0	+61.4	Means	...	...	73	357	208.19	-8.54	...
Means	...	...	7	52	297.83	+18.47	...	Group 1256.							
Group 1253.								A regular spot.							
A small faint spot.								Jan. 17 ²⁶⁰	4	57	9	133	202.8	+1.1	-77.6
Jan. 15 ¹⁶⁴	0	8	0	4	291.7	-13.1	-16.2	18 ³⁵⁶	14	102	15	111	203.4	+1.1	-62.6
Means	...	...	0	4	291.7	-13.1	...	19 ³²²	22	154	17	121	202.9	+1.3	-50.3
Group 1254.								20 ⁵⁴⁶	23	170	14	103	203.1	+0.9	-34.0
A regular spot, <i>a</i> , followed by several very small spots. The whole group is measured together on January 17. The smaller spots vary in number and position from day to day, and are not seen after January 20.								21 ⁴⁴³	43	178	23	97	203.4	+1.1	-21.9
Jan. 17 ²⁶⁰	3	12	3	12	218.8	-0.7	-61.6	22 ²⁶²	20	164	10	84	203.4	+1.0	-11.2
18 ³⁵⁶	7	76	5	54	221.0	-0.3	-45.0	23 ¹³⁰	17	162	9	81	203.5	+1.4	+0.4
19 ³²²	17	99	10	58	221.4	0.0	-31.8	24 ⁵¹⁵	28	148	15	79	203.1	+1.6	+18.3
20 ⁵⁴⁶	26	111	14	58	222.6	-0.3	-14.5	25 ⁴⁴⁸	27	121	16	71	203.2	+1.8	+30.5
								26	No photograph.	(16	67	203.6	+1.5	+44.3)	
								27 ⁵⁰⁰	16	65	16	62	203.9	+1.1	+58.1
								28 ⁵³⁹	9	39	15	65	204.3	+1.3	+72.3
								29 ³⁶²	0	3	0	13	204.8	+1.4	+83.7
								Means	...	...	13	84	203.49	+1.28	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1257. Two small spots.							
1884. ^a					°	°	°
Jan. 19 ^h 32 ^m 22 ^s	3	24	2	17	295°7'	-12°1'	+42°5'
Means ...	...	...	2	17	295°7'	-12°1'	...
Group 1258. A small spot.							
Jan. 22 ^h 26 ^m 2 ^s	0	4	0	5	271°2'	+21°9'	+56°6'
Means ...	...	...	0	5	271°2'	+21°9'	...
Group 1259. A regular spot, <i>a</i> , which diminishes in size day by day, and disappears before January 30. A small spot, <i>b</i> , is seen near it on January 24; two other spots, <i>c</i> and <i>d</i> , appear on January 28, and a fourth, <i>e</i> , on January 29, but on January 30 and 31 only one small spot, <i>d</i> , remains of the entire group.							
Jan. 22 ^h 26 ^m 2 ^s	6	65	11	125	138°7'	-16°5'	-75°9'
23 ^h 13 ^m 0 ^s	8	86	8	92	140°3'	-16°8'	-62°8'
24 ^h 51 ^m 5 ^s	16	133	12	96	139°6'	-17°1'	-45°2'
25 ^h 44 ^m 8 ^s	2	97	1	58	140°6'	-17°5'	-32°1'
26 ^h	No photograph.		(5	36	140°7'	-17°7'	-18°6')
27 ^h 50 ^m 0 ^s	15	24	8	13	140°7'	-17°8'	-5°1'
28 ^h 53 ^m 9 ^s	23	83	12	42	135°3'	-17°0'	+3°3'
29 ^h 36 ^m 2 ^s	7	84	4	44	135°6'	-16°7'	+14°5'
30 ^h 34 ^m 1 ^s	0	8	0	4	132°7'	-15°4'	+24°5'
31 ^h 34 ^m 1 ^s	4	21	3	13	132°8'	-15°1'	+37°8'
Means ...	...	...	6	52	137°70'	-16°76'	...
Group 1260. Two small spots on January 23. A third spot appears on January 24, but the preceding spot increases in size, and other spots appear near it. The group increases yet further on the succeeding days, and consists on January 27 of four large spots following one another in a straight line, with a great number of very small spots clustering round them. The two preceding large spots approach each other, and are measured together on January 28; they afterwards coalesce to form spot <i>a</i> on January 29. The two following spots unite in a similar manner to form spot <i>b</i> . The smaller spots undergo constant changes both in number and size.							
Jan. 23 ^h 13 ^m 0 ^s	0	12	0	16	136°5'	+6°9'	-66°6'
24 ^h 51 ^m 5 ^s	44	162	32	120	139°0'	+6°2'	-45°8'
25 ^h 44 ^m 8 ^s	63	621	38	378	140°2'	+5°8'	-32°5'
26 ^h	No photograph.		(68	393	141°7'	+6°0'	-17°6')
27 ^h 50 ^m 0 ^s	190	792	98	408	143°2'	+6°2'	-2°6'
28 ^h 53 ^m 9 ^s	228	1280	120	670	142°6'	+6°2'	+10°6'
Group 1260—continued.							
1884. ^a					°	°	°
Jan. 29 ^h 36 ^m 2 ^s	143	1017	80	562	143°2'	+6°5'	+22°1'
30 ^h 34 ^m 1 ^s	108	904	68	571	143°7'	+6°5'	+35°5'
31 ^h 34 ^m 1 ^s	47	605	37	483	144°6'	+6°4'	+49°6'
Feb. 1 ^h 45 ^m 0 ^s	40	438	50	531	144°8'	+6°5'	+64°4'
2 ^h 25 ^m 2 ^s	6	221	12	432	144°2'	+6°5'	+74°3'
Means ...	...	...	55	415	142°15'	+6°34'	...
Group 1261. A regular spot, <i>a</i> . Small spots are seen near it on January 27 and 28. It breaks up into a number of small spots on passing the central meridian on January 30.							
Jan. 24 ^h 51 ^m 5 ^s	0	14	0	37	107°3'	+10°4'	-77°5'
25 ^h 44 ^m 8 ^s	0	79	0	102	107°3'	+9°2'	-65°4'
26 ^h	No photograph.		(20	135	107°4'	+9°4'	-51°9')
27 ^h 50 ^m 0 ^s	59	251	40	167	107°5'	+9°6'	-38°3'
28 ^h 53 ^m 9 ^s	48	320	27	182	108°1'	+9°3'	-23°9'
29 ^h 36 ^m 2 ^s	16	218	9	117	107°7'	+9°9'	-13°4'
30 ^h 34 ^m 1 ^s	22	172	11	89	107°4'	+10°0'	-0°8'
31 ^h 34 ^m 1 ^s	15	132	8	70	107°5'	+10°8'	+12°5'
Feb. 1 ^h 45 ^m 0 ^s	9	28	5	16	107°5'	+9°6'	+27°1'
2 ^h 25 ^m 2 ^s	0	13	0	9	108°6'	+9°4'	+38°7'
Means ...	...	...	12	102	107°63'	+9°76'	...
Group 1262. Five small spots in two clusters on January 27. One spot has disappeared before January 28, and the others seem through the effect of foreshortening to form but one cluster.							
Jan. 27 ^h 50 ^m 0 ^s	32	209	43	262	212°8'	-17°0'	+67°0'
28 ^h 53 ^m 9 ^s	12	101	27	229	210°5'	-18°0'	+78°5'
Means ...	...	...	35	246	211°65'	-17°50'	...
Group 1263. A small spot on January 27. A second spot is seen near it on January 28. On January 28, this group and Group 1255 are measured on a different photograph from that on which the remaining spots are measured.							
Jan. 27 ^h 50 ^m 0 ^s	0	12	0	10	199°8'	-11°0'	+54°0'
28 ^h 41 ^m 1 ^s	0	53	0	65	200°3'	-13°2'	+66°7'
Means ...	...	...	0	38	200°05'	-12°10'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1264.							
A large irregular spot, <i>a</i> . A portion, <i>b</i> , is detached from the main spot on January 29, and a second portion, <i>c</i> , on February 1. The spot <i>c</i> breaks up into several small spots on the following day, moving forward and northward at the same time; it disappears before February 6. Some small spots are seen close to the principal spots on January 28, 29, 31, and February 1.							
1884. _d					°	°	°
Jan. 27.500	41	158	70	273	73.9	+ 9.9	-71.9
28.539	104	477	104	480	73.9	+10.5	-58.1
29.362	81	678	62	527	73.8	+10.2	-47.3
30.341	60	743	38	468	74.2	+10.3	-34.0
31.341	85	839	48	464	74.8	+10.2	-20.2
Feb. 1.450	171	1072	90	563	74.4	+10.4	- 6.0
2.252	115	736	60	385	75.0	+10.4	+ 5.1
3	No photograph.		(82	406	75.0	+10.6	+19.7)
4.455	162	668	103	426	75.0	+10.8	+34.2
5.298	26	385	20	290	75.2	+11.2	+45.4
6.156	38	299	38	294	75.4	+11.7	+57.0
7.364	10	116	18	216	75.2	+11.9	+72.6
Means ...	...	...	61	399	74.65	+10.68	...

Group 1265.							
Several small spots. The group is measured as a whole on January 28. The arrangements of the spots change from day to day.							
Jap. 28.539	33	92	19	53	160.4	- 5.8	+28.4
29.362	12	76	7	50	161.4	- 5.7	+40.3
30.341	12	42	10	33	161.8	- 5.8	+53.6
Means ...	...	...	12	45	161.20	- 5.77	...

Group 1266.							
A regular spot.							
Jan. 29.362	17	35	55	114	41.1	+ 9.5	-80.0
30.341	17	123	22	162	41.9	+ 9.3	-66.3
31.341	20	191	17	163	42.7	+ 8.9	-52.3
Feb. 1.450	56	294	37	195	42.0	+ 8.7	-38.4
2.252	35	297	20	174	42.3	+ 8.8	-27.6
3	No photograph.		(27	175	42.6	+ 8.5	-12.8)
4.455	67	339	34	175	42.9	+ 8.2	+ 2.1
5.298	37	302	20	161	43.7	+ 8.1	+13.9
6.156	35	263	20	151	44.0	+ 8.4	+25.6
7.364	30	224	21	154	43.8	+ 8.0	+41.2
8.287	20	180	17	156	43.6	+ 7.8	+53.2
9.245	11	102	13	127	42.9	+ 7.8	+65.1
10.468	0	31	0	135	43.1	+ 8.0	+81.5
Means ...	...	...	23	157	42.82	+ 8.46	...

Group 1267.							
A large regular spot, <i>a</i> , closely followed by another large irregular spot. The latter has broken up by February 1 into several portions, which are, however, measured together, and afterwards diminishes in size, disappearing before February 9. Some small spots are seen near <i>a</i> on February 5 and 6.							
1884. _d					°	°	°
Jan. 30.341	34	251	78	638	27.8	-25.0	-80.4
31.341	71	614	84	753	28.6	-24.9	-66.4
Feb. 1.450	147	897	123	753	28.1	-24.5	-52.3
2.252	114	951	79	665	27.7	-24.4	-42.2
3	No photograph.		(97	630	27.7	-24.4	-27.7)
4.455	209	1099	114	594	27.6	-24.3	-13.2
5.298	150	1026	79	542	27.5	-24.7	- 2.3
6.156	144	945	77	504	27.5	-24.5	+ 9.1
7.364	143	871	82	503	27.1	-24.6	+24.5
8.287	107	727	69	465	26.5	-24.6	+36.1
9.245	74	553	57	428	26.2	-24.5	+48.4
10.468	107	370	121	420	25.9	-24.2	+64.3
11.431	53	212	109	434	26.5	-24.3	+77.5
Means ...	...	...	90	564	27.28	-24.53	...

Group 1268.							
A large irregular spot, <i>a</i> , with a number of small spots in its neighbourhood. The small spots undergo constant changes in size and position. The large spot, <i>a</i> , also undergoes great changes in shape and size.							
Jan. 31.341	27	266	46	454	24.1	+13.3	-70.9
Feb. 1.450	92	544	94	552	23.0	+13.6	-57.4
2.252	48	544	38	428	23.2	+12.6	-46.7
3	No photograph.		(49	453	23.3	+13.2	-32.1)
4.455	106	853	59	477	23.3	+13.8	-17.5
5.298	73	731	40	395	24.2	+13.8	- 5.6
6.156	82	820	44	439	24.5	+13.8	+ 6.1
7.364	85	693	48	396	23.5	+13.6	+20.9
8.287	74	477	47	303	23.5	+13.6	+33.1
9.245	28	339	22	256	22.6	+13.6	+44.8
10.468	39	234	45	267	22.8	+13.6	+61.2
11.431	43	161	95	354	23.7	+14.0	+74.7
Means ...	...	...	52	398	23.48	+13.54	...

Group 1269.							
A small spot. A second is seen on February 2.							
Feb. 1.450	0	14	0	27	7.4	+12.8	-73.0
2.252	0	21	0	25	7.5	+13.1	-62.4
3	No photograph.		(4	26	7.6	+13.1	-47.8)
4.455	13	41	8	26	7.6	+13.1	-33.2
5.298	8	22	5	13	8.2	+13.1	-21.6
6.156	8	27	4	14	8.5	+13.0	- 9.9
7.364	4	29	2	15	8.3	+12.9	+ 5.7
8.287	2	13	1	7	8.2	+12.8	+17.8
Means ...	...	...	3	19	7.92	+12.72	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1270.							
Several small faint spots arranged in a nearly straight line. The group undergoes frequent changes.							
1884. ^a					°	°	°
Feb. 4:455	10	81	6	50	13°3	+17°4	-27°5
5:298	7	83	4	47	15°1	+17°4	-14°7
6:156	6	63	3	35	15°5	+17°3	-2°9
7:364	3	63	2	35	16°6	+17°2	+14°0
8:287	5	77	3	47	17°7	+16°9	+27°3
Means ...	...	...	4	43	15°64	+17°24	...
Group 1271.							
A large regular spot. A second spot appears on February 14.							
Feb. 4:455	12	106	21	186	329°0	+11°3	-71°8
5:298	12	156	13	170	329°4	+11°4	-60°4
6:156	16	225	13	182	329°4	+11°6	-49°0
7:364	26	302	16	191	329°1	+11°6	-33°5
8:287	44	278	25	157	329°0	+11°6	-21°4
9:245	45	293	24	156	328°8	+11°9	-9°0
10:468	58	295	31	157	328°9	+12°0	+7°3
11:431	50	270	28	151	329°1	+11°6	+20°1
12:481	35	244	22	156	329°5	+11°9	+34°3
13:403	42	210	32	163	329°6	+12°0	+46°6
14:559	42	153	49	182	330°4	+12°6	+62°6
15:453	24	108	48	241	331°1	+12°4	+75°1
Means ...	...	...	27	174	329°44	+11°83	...
Group 1272.							
Two small spots on February 5, on which day they are measured together. They have moved apart and increased in size by February 6. The preceding spot has disappeared by February 7.							
Feb. 5:298	0	5	0	4	341°2	-4°4	-48°6
6:156	4	21	3	13	340°9	-4°5	-37°5
7:364	9	30	5	16	340°3	-4°8	-22°3
8:287	8	25	4	13	340°5	-5°0	-9°9
Means ...	...	...	3	12	340°73	-4°68	...
Group 1273.							
A small spot when first seen. A second is seen on February 6, a third on February 7. The group consists after this of a number of small spots irregularly arranged, the size, distribution, and number changing from day to day.							
Feb. 5:298	0	3	0	4	321°4	+12°8	-68°4
6:156	0	20	0	19	322°6	+13°2	-55°8
7:364	0	40	0	31	325°1	+13°9	-37°5
8:287	2	57	1	34	323°6	+13°7	-26°8
9:245	4	158	2	87	323°5	+13°9	-14°3
10:468	20	142	10	76	323°7	+13°6	+2°1
Group 1273—continued.							
1884. ^a					°	°	°
Feb. 11:431	22	81	12	45	324°7	+13°0	+15°7
12:481	16	84	10	51	325°8	+13°5	+30°6
13:403	0	40	0	31	327°8	+15°5	+44°8
14:559	0	16	0	18	328°0	+16°3	+60°2
15:453	0	12	0	27	326°7	+16°3	+70°7
Means ...	...	...	3	38	324°81	+13°98	...
Group 1274.							
A small spot.							
Feb. 8:287	2	5	2	4	37°6	+12°1	+47°2
Means ...	...	...	2	4	37°6	+12°1	...
Group 1275.							
Three small faint spots measured together.							
Feb. 8:287	0	19	0	10	1°9	-10°2	+11°5
Means ...	...	...	0	10	1°9	-10°2	...
Group 1276.							
A small spot on February 9. On February 10 the group consists of three spots of considerable size, the first two being measured together.							
Feb. 9:245	0	12	0	13	38°1	+10°9	+60°3
10:468	0	113	0	257	36°9	+12°4	+75°3
Means ...	...	...	0	135	37°50	+11°65	...
Group 1277.							
A fine group composed of two large regular spots, <i>a</i> and <i>b</i> , and a number of smaller spots between them, which undergo frequent changes, and which have all disappeared by February 20.							
Feb. 9:245	4	42	18	203	254°9	+8°4	-82°9
10:468	89	468	132	705	252°3	+7°5	-69°3
11:431	112	685	107	641	252°9	+7°2	-56°1
12:481	155	1002	106	693	253°8	+7°2	-41°4
13:403	191	1012	112	696	254°0	+7°1	-29°0
14:559	317	1373	168	728	254°4	+6°9	-13°4
15:453	186	1137	96	587	254°6	+7°2	-1°4
16:470	198	969	105	514	255°6	+7°2	+13°0
17	No photograph.	(104	510	256°0	+7°4	+26°1)	
18:398	153	755	103	505	256°4	+7°5	+39°2
19	No photograph.	(78	409	257°1	+7°5	+53°6)	
20:481	35	220	52	313	257°8	+7°4	+68°0
Means ...	...	...	98	542	254°98	+7°38	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1278. A small spot, <i>a</i> , which has disappeared by February 12. A second spot, <i>b</i> , appears on February 11.								Group 1283. A small spot.							
1884. _a Feb. 10 ^h 468	0	11	0	6	340 ^o 6	+ 6 ^o 9	+ 19 ^o 0	1884. _a Feb. 13 ^h 403	0	20	0	21	220 ^o 2	— 15 ^o 8	— 62 ^o 8
11 ^h 431	10	57	6	34	340 ^o 1	+ 7 ^o 5	+ 31 ^o 1	14 ^h 559	0	7	0	5	220 ^o 5	— 15 ^o 4	— 47 ^o 3
12 ^h 481	7	21	5	15	338 ^o 7	+ 8 ^o 6	+ 43 ^o 5	Means ...	...	...	0	13	220 ^o 35	— 15 ^o 60	...
Means ...	...	...	4	18	339 ^o 80	+ 7 ^o 67	...	Group 1284. A large regular spot, <i>a</i> , preceded by a number of small spots, which diminish in size day by day, and disappear before February 20.							
Group 1279. Two small spots.								Feb. 13 ^h 403	38	248	70	437	208 ^o 6	— 11 ^o 2	— 74 ^o 4
Feb. 10 ^h 468	0	12	0	7	333 ^o 8	+ 12 ^o 0	+ 12 ^o 2	14 ^h 559	103	506	101	488	208 ^o 4	— 10 ^o 8	— 59 ^o 4
11 ^h 431	0	17	0	9	333 ^o 6	+ 11 ^o 4	+ 24 ^o 6	15 ^h 453	96	559	71	411	208 ^o 2	— 10 ^o 0	— 47 ^o 8
Means ...	...	...	0	8	333 ^o 70	+ 11 ^o 70	...	16 ^h 470	99	537	59	324	207 ^o 9	— 9 ^o 7	— 34 ^o 7
Group 1280. A single spot.								17	No photograph.		(57	318	207 ^o 9	— 9 ^o 7	— 22 ^o 1)
Feb. 10 ^h 468	0	18	0	31	246 ^o 8	— 19 ^o 2	— 74 ^o 8	18 ^h 398	106	615	54	312	207 ^o 8	— 9 ^o 7	— 9 ^o 4
11 ^h 431	3	57	3	59	247 ^o 1	— 19 ^o 8	— 61 ^o 9	19	No photograph.		(51	305	207 ^o 6	— 9 ^o 6	+ 4 ^o 1)
12 ^h 481	0	65	0	48	247 ^o 7	— 19 ^o 8	— 47 ^o 5	20 ^h 481	90	571	47	298	207 ^o 4	— 9 ^o 4	+ 17 ^o 6
Means ...	...	...	1	46	247 ^o 20	— 19 ^o 60	...	21 ^h 538	57	490	34	288	207 ^o 3	— 9 ^o 3	+ 31 ^o 4
Group 1281. A single spot.								22 ^h 283	44	384	29	255	207 ^o 4	— 9 ^o 2	+ 41 ^o 4
Feb. 10 ^h 468	0	41	0	155	238 ^o 0	— 9 ^o 8	— 83 ^o 6	23 ^h 394	50	299	44	263	207 ^o 3	— 9 ^o 1	+ 55 ^o 9
11 ^h 431	10	63	14	90	238 ^o 9	— 10 ^o 1	— 70 ^o 1	24 ^h 456	49	188	68	262	207 ^o 1	— 8 ^o 9	+ 69 ^o 7
12 ^h 481	27	106	24	93	239 ^o 3	— 10 ^o 4	— 55 ^o 9	25 ^h 498	19	45	90	216	208 ^o 8	— 9 ^o 1	+ 85 ^o 1
13 ^h 403	43	148	30	101	239 ^o 3	— 10 ^o 6	— 43 ^o 7	Means ...	...	...	60	321	207 ^o 83	— 9 ^o 67	...
14 ^h 559	25	107	14	60	240 ^o 0	— 11 ^o 0	— 27 ^o 8	Group 1285. Two considerable spots, <i>a</i> and <i>b</i> , which appear suddenly near the centre of the sun. Several small spots are seen close to them. The appearance and areas of the spots undergo frequent changes.							
15 ^h 453	24	74	13	38	240 ^o 1	— 10 ^o 9	— 15 ^o 9	Feb. 14 ^h 559	92	303	48	160	285 ^o 5	— 11 ^o 7	+ 17 ^o 7
16 ^h 470	16	33	8	16	240 ^o 3	— 10 ^o 8	— 2 ^o 3	15 ^h 453	95	597	54	341	285 ^o 2	— 11 ^o 4	+ 29 ^o 2
17	No photograph.		(8	14	240 ^o 4	— 10 ^o 5	+ 10 ^o 5)	16 ^h 470	87	596	59	406	285 ^o 8	— 11 ^o 5	+ 43 ^o 2
18 ^h 398	15	23	8	12	240 ^o 5	— 10 ^o 2	+ 23 ^o 3	17	No photograph.		(52	416	286 ^o 0	— 11 ^o 3	+ 56 ^o 1)
Means ...	...	...	13	64	239 ^o 64	— 10 ^o 48	...	18 ^h 398	33	320	44	425	286 ^o 1	— 11 ^o 0	+ 68 ^o 9
Group 1282. A small spot.								Means ...	...	...	51	350	285 ^o 72	— 11 ^o 38	...
Group 1286. Two compact clusters of very small spots. The members of each cluster have coalesced by February 16, thus forming two small spots. The photograph on February 21 is much over-exposed.								Feb. 15 ^h 453	29	88	14	45	249 ^o 1	— 10 ^o 1	— 6 ^o 9
Feb. 13 ^h 403	0	19	0	21	342 ^o 0	+ 20 ^o 4	+ 59 ^o 0	16 ^h 470	17	44	8	22	249 ^o 2	— 10 ^o 1	+ 6 ^o 6
14 ^h 559	0	12	0	29	342 ^o 2	+ 20 ^o 5	+ 74 ^o 4	Means ...	...	...	11	34	249 ^o 15	— 10 ^o 10	...
Means ...	...	...	0	25	342 ^o 10	+ 20 ^o 45	...								

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1287. A scattered group of small faint spots.								Group 1291. A regular spot, α . A small spot appears near it on February 22 and is measured with it. Other small spots appear on February 23. The whole group is measured together as one on February 24. A small but dark spot, δ , appears on February 25. The group is measured in three portions on February 25 and 26; α and δ separately, and the remaining small spots together. The small spots seen on February 26 are wholly different from those seen on February 25.							
1884. _a Feb. 16.470	o	37	o	23	205.0	-15.5	-37.6	1884. _a Feb. 18.398	29	141	39	191	150.0	+7.3	-67.2
17	No photograph.		(2	29	204.4	-15.6	-25.5)	19	No photograph.	(36	211	150.7	+7.2	-52.8)	
18.398	7	67	4	34	203.8	-15.6	-13.4	20.481	49	350	32	230	151.4	+7.0	-38.4
19	No photograph.		(2	43	204.3	-15.5	+0.8)	21.538	37	302	21	172	151.9	+7.4	-24.0
20.481	o	99	o	51	204.7	-15.3	+14.9	22.283	29	306	15	163	152.0	+7.5	-14.0
21.538	o	76	o	44	204.8	-16.7	+28.9	23.394	51	240	27	125	152.3	+7.9	+0.9
22.283	6	38	4	24	204.5	-14.8	+38.5	24.456	25	221	13	119	152.6	+8.0	+15.2
Means ...	...	...	2	35	204.50	-15.57	...	25.498	38	183	28	110	152.9	+8.8	+29.2
Group 1288. A large regular spot, α , followed by a stream of smaller spots.								26.480	28	134	20	96	153.1	+9.9	+42.3
Feb. 16.470	1	31	1	50	173.0	+14.0	-69.6	27.234	13	79	12	68	152.9	+10.1	+52.1
17	No photograph.		(22	124	173.8	+14.2	-56.2)	Group 1292. A scattered group of small faint spots.							
18.398	55	268	42	197	174.5	+14.3	-42.7	Feb. 20.481	11	37	6	20	213.4	-16.2	+23.6
19	No photograph.		(50	257	175.1	+14.1	-28.5)	21.538	o	43	o	27	214.0	-15.5	+38.1
20.481	104	575	58	317	175.6	+13.9	-14.2	22.283	o	12	o	9	211.9	-18.8	+45.9
21.538	102	658	54	354	176.5	+13.5	+0.6	Means ...	...	...	2	19	213.10	-16.83	...
22.283	61	828	33	450	177.0	+13.3	+11.0	Group 1293. Two spots close together. They are measured together until February 24, but separately afterwards. The following spot breaks up into three parts on February 25, but is still measured as a whole.							
23.394	96	731	57	437	177.5	+12.9	+26.1	Feb. 21.538	o	37	o	63	102.2	-7.1	-73.7
24.456	80	592	58	425	178.4	+12.9	+41.0	22.283	11	57	12	62	102.6	-7.0	-63.4
25.498	51	314	50	313	180.3	+12.8	+56.6	23.394	27	115	20	86	103.0	-7.7	-48.4
26.480	15	164	26	272	180.9	+12.7	+70.1	24.456	16	180	10	108	103.3	-7.5	-34.1
27.234	1	45	5	215	182.8	+13.3	+82.0	25.498	20	131	11	70	104.0	-7.5	-19.7
Means ...	...	...	38	284	177.12	+13.49	...	26.480	37	97	18	49	103.6	-7.6	-7.2
Group 1289. A number of small faint spots irregularly arranged.								27.234	6	58	3	29	103.7	-7.3	+2.9
Feb. 18.398	o	71	o	11	259.5	-13.3	+42.3	Means ...	...	...	11	67	103.20	-7.39	...
19	No photograph.		(o	18	260.5	-11.4	+57.0)	Group 1294. A faint spot.							
20.481	1	16	1	25	261.5	-9.5	+71.7	Feb. 22.283	o	3	o	3	98.0	-6.7	-68.0
Means ...	...	...	1	18	260.50	-11.40	...	23.394	o	37	o	32	96.6	-7.3	-54.8
Group 1290. A small well-defined spot.								24.456	o	106	o	69	97.1	-7.5	-40.3
Feb. 18.398	o	7	o	4	213.6	-21.9	-3.6	25.498	10	61	5	34	98.4	-7.7	-25.3
Means ...	...	...	o	4	213.6	-21.9	...	26.480	o	67	o	36	98.7	-8.4	-12.1
								Means ...	...	...	1	35	97.76	-7.52	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1295. A regular spot.							
1884. ^a Feb. 23 ³⁹ 4	7	33	19	85	74°5	+11°7	-76°9
24 ⁴⁵ 6	15	64	19	80	73°6	+12°4	-63°8
25 ⁴⁹ 8	20	98	17	82	73°8	+12°1	-49°9
26 ⁴⁸ 0	25	139	17	94	73°4	+12°3	-37°4
27 ²³ 4	16	97	9	59	73°3	+12°7	-27°5
28	No photograph.		(12	54	73°5	+12°5	-12°1)
29 ⁵⁵ 8	27	91	14	48	73°6	+12°2	+3°3
Mar. 1 ⁴³ 4	19	62	10	34	73°2	+12°3	+14°5
2 ⁵⁵ 3	16	76	10	47	73°3	+12°2	+29°4
3 ²⁹ 7	8	63	6	44	73°9	+12°1	+39°7
Means ...	...	...	13	63	73°61	+12°25	...
Group 1296. Three spots close together on February 24. On February 26 the group consists of two cluster of spots, <i>a</i> and <i>b</i> . On February 29 a small regular spot, <i>c</i> , appears a little in advance of <i>a</i> . <i>a</i> and <i>b</i> are measured together on March 1, and disappear before March 2. <i>c</i> has divided into two portions by March 2.							
Feb. 24 ⁴⁵ 6	41	204	42	211	75°8	-14°1	-61°6
25 ⁴⁹ 8	57	254	42	188	75°8	-14°9	-47°9
26 ⁴⁸ 0	45	305	28	185	76°3	-14°6	-34°5
27 ²³ 4	44	223	25	124	75°7	-14°2	-25°1
28	No photograph.		(23	113	77°9	-13°7	-7°7)
29 ⁵⁵ 8	41	199	21	101	80°0	-13°2	+9°7
Mar. 1 ⁴³ 4	31	171	17	93	81°4	-12°4	+22°7
2 ⁵⁵ 3	37	135	23	86	82°3	-12°7	+38°4
3 ²⁹ 7	12	111	10	84	83°1	-13°2	+48°9
Means ...	...	...	26	132	78°70	-13°67	...
Group 1297. A regular spot.							
Feb. 24 ⁴⁵ 6	0	21	0	48	61°7	+9°3	-75°7
25 ⁴⁹ 8	16	64	17	67	64°1	+9°6	-59°6
26 ⁴⁸ 0	16	53	12	40	65°3	+8°4	-45°5
27 ²³ 4	10	71	7	45	65°9	+8°1	-34°9
28	No photograph.		(8	33	67°2	+7°4	-18°4)
29 ⁵⁵ 8	16	41	8	21	68°5	+6°7	-1°8
Mar. 1 ⁴³ 4	8	27	4	14	68°6	+6°5	+9°9
2 ⁵⁵ 3	10	20	6	12	69°5	+6°2	+25°6
3 ²⁹ 7	0	2	0	2	70°4	+6°1	+36°2
Means ...	...	...	7	31	66°80	+7°59	...
Group 1298. A very small spot on February 25. Three spots on February 26, the last two of which have coalesced by February 27.							
1884. ^a Feb. 25 ⁴⁹ 8	2	7	1	6	174°0	+8°7	+50°3
26 ⁴⁸ 0	93	432	107	484	172°7	+7°3	+61°9
27 ²³ 4	19	238	33	421	173°3	+6°7	+72°5
Means ...	...	...	47	304	173°33	+7°57	...
Group 1299. Two clusters of small spots. Only two spots remain of the following cluster on February 27, and these are measured separately.							
Feb. 25 ⁴⁹ 8	23	80	12	42	125°6	+10°6	+1°9
26 ⁴⁸ 0	20	119	11	65	126°2	+10°7	+15°4
27 ²³ 4	10	164	6	96	126°9	+11°3	+26°1
Means ...	...	...	10	68	126°23	+10°87	...
Group 1300. A small spot.							
Feb. 25 ⁴⁹ 8	0	4	0	5	58°8	+10°1	-64°9
26 ⁴⁸ 0	0	15	0	12	59°6	+9°8	-51°2
27 ²³ 4	0	5	0	4	59°4	+10°4	-41°4
Means ...	...	...	0	7	59°27	+10°10	...
Group 1301. A large regular spot, <i>a</i> , which has divided into two portions by March 5. The two spots are not measured separately until March 6. Some small spots are seen near <i>a</i> on March 2, and others on March 3.							
Feb. 25 ⁴⁹ 8	33	123	144	540	41°7	+10°6	-82°0
26 ⁴⁸ 0	82	311	133	505	40°6	+10°4	-70°2
27 ²³ 4	67	471	72	506	40°9	+10°8	-59°9
28	No photograph.		(86	519	41°3	+10°6	-44°3)
29 ⁵⁵ 8	174	885	104	531	41°6	+10°3	-28°7
Mar. 1 ⁴³ 4	105	861	58	474	41°2	+10°3	-17°5
2 ⁵⁵ 3	146	987	76	518	41°2	+10°3	-2°7
3 ²⁹ 7	94	941	50	498	41°8	+10°4	+7°6
4	No photograph.		(56	426	41°8	+10°4	+21°9)
5 ⁴⁶ 5	94	541	62	353	41°8	+10°4	+36°2
6 ³³ 9	65	495	51	390	41°8	+10°1	+47°7
7 ⁴⁵ 4	35	204	41	237	41°8	+10°4	+62°4
Means ...	...	...	78	458	41°46	+10°42	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1302.							
A small spot on February 26. A number of other spots appear before February 27, and on February 29 the group consists of two large spots, <i>a</i> and <i>b</i> , and some small spots between them. <i>b</i> has broken up into a number of small spots by March 3, and on March 5 the group consists of a number of small spots in a fairly compact cluster, which are, therefore, measured together; but as the individual spots tend to move apart, the group is measured in four divisions on March 6.							
1884. ^a Feb. 26 ⁴⁸⁰	0	15	0	14	52.9	- 8.4	- 57.9
27 ²³⁴	14	48	10	35	52.9	- 8.2	- 47.9
28	No photograph.	(41	297	54.4	- 8.6	- 31.2)	
29 ⁵⁵⁸	136	1077	71	558	55.8	- 8.9	- 14.5
Mar. 1 ⁴³⁴	113	918	57	461	55.4	- 8.9	- 3.3
2 ⁵⁵³	115	872	59	447	55.7	- 9.0	+ 11.8
3 ²⁹⁷	83	688	45	374	56.2	- 8.9	+ 22.0
4	No photograph.	(62	383	55.9	- 8.9	+ 36.0)	
5 ⁴⁶⁵	101	508	78	392	55.6	- 8.9	+ 50.0
6 ³³⁹	10	197	12	212	56.8	- 8.8	+ 62.7
7 ⁴⁵⁴	0	115	0	249	57.0	- 8.5	+ 77.6
Means ...	...	...	40	311	55.33	- 8.73	...
Group 1303.							
A regular spot, <i>a</i> , followed by a smaller one, <i>b</i> . The latter has broken up into a number of very small spots by March 1. These have all disappeared by March 6.							
Feb. 27 ²³⁴	4	43	10	108	20.1	- 26.3	- 80.7
28	No photograph.	(13	114	20.5	- 26.5	- 65.1)	
29 ⁵⁵⁸	20	150	16	119	20.8	- 26.6	- 49.5
Mar. 1 ⁴³⁴	29	312	19	209	19.9	- 27.0	- 38.8
2 ⁵⁵³	51	273	29	159	19.8	- 27.0	- 24.1
3 ²⁹⁷	24	209	13	116	19.9	- 26.9	- 14.3
4	No photograph.	(17	120	20.1	- 26.8	+ 0.1)	
5 ⁴⁶⁵	36	227	20	124	20.2	- 26.7	+ 14.6
6 ³³⁹	17	182	10	106	19.6	- 26.6	+ 25.5
7 ⁴⁵⁴	27	109	18	74	19.3	- 26.5	+ 39.9
8	No photograph.	(18	81	18.4	- 26.6	+ 52.8)	
9 ⁵⁴³	16	78	18	87	17.5	- 26.6	+ 65.6
10 ⁵⁶⁶	1	41	2	93	17.6	- 27.1	+ 79.2
Means ...	...	...	16	116	19.52	- 26.71	...
Group 1304.							
A small spot. A second is seen near it on March 1.							
Feb. 29 ⁵⁵⁸	7	19	4	11	40.5	- 6.9	- 29.8
Mar. 1 ⁴³⁴	0	119	0	63	39.6	- 7.9	- 19.1
2 ⁵⁵³	0	13	0	7	41.9	- 7.1	- 2.0
Means ...	...	...	1	27	40.67	- 7.30	...
Group 1305.							
A small spot.							
1884. ^a Mar. 3 ²⁹⁷	0	5	0	3	23.4	+ 17.7	- 10.8
4	No photograph.	(0	8	23.6	+ 18.0	+ 3.7)	
5 ⁴⁶⁵	0	21	0	12	23.8	+ 18.2	+ 18.2
Means ...	...	...	0	8	23.60	+ 17.97	...
Group 1306.							
A small spot.							
Mar. 3 ²⁹⁷	0	3	0	3	332.3	+ 11.0	- 61.9
Means ...	...	...	0	3	332.3	+ 11.0	...
Group 1307.							
A regular spot, <i>a</i> , followed on March 9, 10, and 11 by several small spots.							
Mar. 3 ²⁹⁷	5	61	9	105	322.8	+ 10.2	- 71.4
4	No photograph.	(16	97	323.0	+ 10.1	- 57.0)	
5 ⁴⁶⁵	32	123	23	88	323.1	+ 10.0	- 42.5
6 ³³⁹	23	123	14	76	323.1	+ 10.3	- 31.0
7 ⁴⁵⁴	27	127	15	69	323.7	+ 10.0	- 15.7
8	No photograph.	(13	84	323.6	+ 9.7	- 2.1)	
9 ⁵⁴³	21	183	11	98	323.5	+ 9.3	+ 11.6
10 ⁵⁶⁶	33	129	19	75	323.7	+ 11.2	+ 25.3
11 ²²⁸	7	116	5	74	323.5	+ 11.3	+ 33.9
12 ⁵⁹³	0	27	0	24	325.0	+ 10.9	+ 53.4
Means ...	...	...	13	79	323.50	+ 10.30	...
Group 1308.							
Two large irregular spots, <i>a</i> and <i>b</i> . A great number of very small spots are seen in their neighbourhood March 5-11; these are partly between <i>a</i> and <i>b</i> , and partly following <i>b</i> .							
Mar. 3 ²⁹⁷	4	69	8	144	317.0	- 10.3	- 77.2
4	No photograph.	(35	297	317.8	- 10.1	- 62.2)	
5 ⁴⁶⁵	85	618	61	449	318.5	- 9.9	- 47.1
6 ³³⁹	66	979	41	607	318.0	- 10.1	- 36.1
7 ⁴⁵⁴	178	953	94	510	318.5	- 9.9	- 20.9
8	No photograph.	(86	491	318.4	- 9.8	- 7.3)	
9 ⁵⁴³	155	935	78	471	318.3	- 9.7	+ 6.4
10 ⁵⁶⁶	134	829	72	446	320.4	- 8.8	+ 22.0
11 ²²⁸	65	753	39	439	320.5	- 9.0	+ 30.9
12 ⁵⁹³	48	374	39	293	322.3	- 8.7	+ 50.7
Means ...	...	...	55	415	318.97	- 9.63	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1309.								
A small regular spot, <i>a</i> ; a second, <i>b</i> , appears closely following it on March 9.								
1884. ^a Mar.	6 ^h 339	4	26	6	40	282°5	— 4°8	— 71°6
	7 ^h 454	7	58	6	51	283°2	— 5°0	— 56°2
	8	No photograph.		(7	37	283°3	— 4°9	— 42°4)
	9 ^h 543	12	39	7	22	283°3	— 4°8	— 28°6
	10 ^h 566	8	63	4	33	283°9	— 4°9	— 14°5
	11 ^h 228	10	102	5	52	283°6	— 4°8	— 6°0
	12 ^h 593	0	44	0	23	284°6	— 4°9	+ 13°0
Means	...	...	...	5	37	283°50	— 4°87	...
Group 1310.								
A regular spot, which breaks up into several portions on March 9. The group again appears as a single regular spot on March 14, and as the group on the intermediate days always forms a compact cluster, it is measured as a whole.								
Mar.	6 ^h 339	2	20	14	148	265°3	— 16°2	— 88°8
	7 ^h 454	15	80	23	124	266°8	— 16°6	— 72°6
	8	No photograph.		(31	264	267°7	— 16°8	— 68°0)
	9 ^h 543	56	588	38	403	268°6	— 16°9	— 43°3
	10 ^h 566	91	625	53	363	268°4	— 17°2	— 30°0
	11 ^h 228	49	429	27	234	268°1	— 16°8	— 21°5
	12 ^h 593	89	395	45	201	268°7	— 17°0	— 2°9
	13	No photograph.		(35	187	268°6	— 16°8	+ 10°1)
	14 ^h 577	44	316	25	173	268°5	— 16°6	+ 23°0
	15 ^h 463	45	305	28	188	268°5	— 16°9	+ 34°7
	16 ^h 441	29	224	21	164	268°9	— 16°3	+ 47°9
	17 ^h 503	20	100	19	101	268°2	— 16°6	+ 61°3
	18 ^h 438	17	81	29	141	269°2	— 16°2	+ 74°6
Means	...	...	...	30	207	268°12	— 16°68	...
Group 1311.								
A regular spot.								
Mar.	7 ^h 454	11	45	18	78	265°5	— 8°4	— 73°9
	8	No photograph.		(14	77	265°7	— 8°3	— 60°0)
	9 ^h 543	12	107	9	76	265°9	— 8°2	— 46°0
	10 ^h 566	19	119	11	70	266°0	— 8°1	— 32°4
	11 ^h 228	6	82	3	45	266°0	— 8°1	— 23°6
	12 ^h 593	8	33	4	16	266°3	— 8°0	— 5°3
	13	No photograph.		(4	15	266°4	— 7°7	+ 7°9)
	14 ^h 577	8	24	4	13	266°5	— 7°4	+ 21°0
	15 ^h 463	7	21	4	13	266°4	— 7°4	+ 32°6
	16 ^h 441	0	12	0	8	267°1	— 6°7	+ 46°1
Means	...	...	...	7	41	266°18	— 7°83	...
Group 1312.								
A small spot. A second is seen close to it on March 10 and 11, but the two are measured together.								
1884. ^a Mar.	9 ^h 543	0	22	0	13	278°9	— 7°5	— 33°0
	10 ^h 566	0	66	0	35	279°1	— 6°8	— 19°3
	11 ^h 228	0	19	0	10	278°9	— 6°6	— 10°7
Means	...	...	...	0	19	278°97	— 6°97	...
Group 1313.								
Two small spots, <i>a</i> and <i>b</i> ; <i>a</i> disappears before March 12.								
Mar.	9 ^h 543	25	56	21	47	260°6	+ 10°1	— 51°3
	10 ^h 566	4	43	3	28	260°6	+ 10°4	— 37°8
	11 ^h 228	1	14	1	8	260°0	+ 10°3	— 29°6
	12 ^h 593	0	11	0	6	259°5	+ 9°6	— 12°1
Means	...	...	...	6	22	260°18	+ 10°10	...
Group 1314.								
Two large spots, <i>a</i> and <i>b</i> ; <i>a</i> breaks up into several portions on March 12, and diminishes in size; it is still, however, measured as a whole. A small spot, <i>c</i> , is seen between <i>a</i> and <i>b</i> on March 14 and 15; <i>a</i> and <i>c</i> disappear before March 16.								
Mar.	9 ^h 543	8	123	17	284	236°6	+ 13°1	— 75°3
	10 ^h 566	25	270	34	356	233°6	+ 14°0	— 64°8
	11 ^h 228	35	368	36	367	233°2	+ 14°1	— 56°4
	12 ^h 593	66	341	45	236	233°1	+ 13°9	— 38°5
	13	No photograph.		(37	211	232°8	+ 14°3	— 25°8)
	14 ^h 577	52	336	29	185	232°4	+ 14°7	— 13°1
	15 ^h 463	68	355	37	192	232°0	+ 14°8	— 1°8
	16 ^h 441	33	316	18	172	231°6	+ 15°0	+ 10°6
	17 ^h 503	44	256	27	153	231°4	+ 15°3	+ 24°5
	18 ^h 438	31	112	21	76	231°5	+ 15°1	+ 36°9
	19 ^h 474	8	48	7	43	231°0	+ 15°0	+ 50°1
Means	...	...	...	28	207	232°65	+ 14°48	...
Group 1315.								
Two spots.								
Mar.	10 ^h 566	0	45	0	59	6°8	— 12°3	+ 68°4
	11 ^h 228	0	24	0	47	6°2	— 12°1	+ 76°6
Means	...	...	...	0	53	6°50	— 12°20	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1316. A small spot.							
1884. _d Mar. 10.566	0	16	0	8	286.9	- 9.9	- 11.5
Means ...	...	...	0	8	286.9	- 9.9	...
Group 1317. A small spot on March 10 and 11; it rapidly increases in size, and on March 12 is composed of seven spots in a compact cluster. This has broken up into two well-defined clusters, <i>a</i> and <i>b</i> , by March 14, and the separate spots have coalesced to form two spots by March 17, <i>a</i> showing a large proper motion in longitude.							
Mar. 10.566	0	11	0	7	255.3	-13.4	-43.1
11.228	8	22	5	13	255.3	-13.2	-34.3
12.593	31	140	16	73	255.0	-13.3	-16.6
13	No photograph.	(17	125	255.0	-12.7	- 3.6)	
14.577	32	352	17	177	255.0	-12.2	+ 9.5
15.463	97	718	53	387	254.8	-12.3	+21.0
16.441	45	360	27	217	255.6	-11.8	+34.6
17.503	16	200	12	151	254.7	-12.3	+47.8
18.438	16	128	15	135	256.9	-11.6	+62.3
19.474	0	8	0	12	252.2	-12.3	+71.3
Means ...	...	...	16	130	254.98	-12.51	...
Group 1318. Two very small spots.							
Mar. 11.228	0	18	0	9	284.2	- 9.0	- 5.4
Means ...	...	...	0	9	284.2	- 9.0	...
Group 1319. Several small spots. The group has greatly increased in size by March 12, but only one small spot remains on March 14.							
Mar. 11.228	0	12	0	7	255.8	-17.0	-33.8
12.593	25	145	13	76	259.0	-16.3	-12.6
13	No photograph.	(7	44	260.4	-15.4	+ 1.8)	
14.577	0	20	0	11	261.7	-14.4	+16.2
15.463	8	15	5	8	261.8	-14.3	+28.0
Means ...	...	...	5	29	259.74	-15.48	...
Group 1320. A regular spot.							
1884. _d Mar. 11.288	3	36	9	114	207.6	- 9.8	-82.0
12.593	21	107	23	117	207.6	-10.0	-64.0
13	No photograph.	(19	135	208.1	- 9.9	-50.5)	
14.577	24	248	15	153	208.5	- 9.8	-37.0
15.463	44	223	24	124	208.5	-10.0	-25.3
16.441	37	232	19	118	208.6	-10.0	-12.4
17.503	44	220	22	110	208.5	- 9.9	+ 1.6
18.438	36	211	18	109	208.6	- 9.6	+14.0
19.474	48	284	27	160	208.2	- 9.6	+27.3
20.439	28	236	19	154	208.7	- 9.1	+40.4
21.476	25	153	21	127	208.0	- 9.4	+53.5
22.238	16	107	17	117	207.9	- 8.9	+63.4
23.553	10	50	29	145	208.3	- 9.6	+81.1
Means ...	...	...	20	129	208.24	- 9.67	...
Group 1321. Two spots.							
Mar. 14.577	4	68	3	82	312.0	-12.7	+66.5
15.463	0	116	0	266	312.5	-13.1	+78.7
Means ...	...	..	2	174	312.25	-12.90	...
Group 1322. Four small spots, <i>a</i> , <i>b</i> , <i>c</i> , and <i>d</i> ; a number of other spots appear close to <i>b</i> on March 15 and 16, and are measured with it.							
Mar. 14.577	8	92	6	68	198.8	-14.1	-46.7
15.463	58	293	35	181	198.6	-13.9	-35.2
16.441	57	468	31	253	198.9	-14.0	-22.1
17.503	100	440	50	225	199.9	-14.1	- 7.0
18.438	60	534	30	271	199.0	-14.2	+ 4.4
19.474	56	208	29	110	199.3	-14.1	+18.4
20.439	20	92	12	53	198.2	-14.4	+29.9
21.476	0	17	0	11	197.6	-13.8	+43.1
Means ...	...	...	24	147	198.79	+14.08	...
Group 1323. A regular spot.							
Mar. 14.577	16	76	16	74	188.2	+12.1	-57.3
15.463	21	136	16	106	187.8	+12.2	-46.0
16.441	27	180	17	115	187.8	+12.2	-33.2
17.503	32	192	19	110	187.7	+12.9	-19.2
18.438	50	182	26	97	188.5	+13.2	- 6.1
19.474	16	216	9	116	188.5	+13.7	+ 7.6

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.				Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1323—continued.									Group 1327.								
1884. <i>a</i>									A regular spot, <i>a</i> . A second, <i>b</i> , follows on March 18. Several smaller spots (measured as one) are seen between them on March 19. <i>b</i> has disappeared by March 21. On March 22 <i>a</i> is followed by a long straggling line of very small faint spots.								
Mar. 20.439	20	216	11	124	188.4	+14.6	+20.1		1884. <i>a</i>								
21.476	22	131	17	101	188.8	+14.4	+34.3		Mar. 17.503	0	32	0	88	130.1	+14.7	-76.8	
22.238	12	94	9	71	188.8	+14.6	+44.3		18.438	2	128	4	195	126.4	+13.9	-68.2	
23.553	1	25	1	30	189.7	+14.0	+62.5		19.474	36	216	35	207	126.3	+14.0	-54.6	
24.295	0	10	0	18	189.5	+14.4	+72.1		20.439	8	140	6	103	126.7	+14.6	-41.6	
Means ...	...	...	13	87	188.52	+13.48	...		21.476	0	98	0	58	131.2	+15.3	-23.3	
									22.238	2	60	1	34	125.6	+14.3	-18.9	
Group 1324.									Means ...	...	...	8	114	127.72	+14.47	...	
A regular spot, <i>a</i> ; a small spot, <i>b</i> , is seen near it on March 21, 22 and 23.									Group 1328.								
Mar. 14.577	44	228	58	295	179.7	+6.9	-65.8		A faint spot.								
15.463	68	421	62	378	179.4	+7.0	-54.4		Mar. 18.438	0	45	0	36	240.5	+13.8	+45.9	
16.441	74	532	51	367	179.4	+7.0	-41.6		Means ...	...	...	0	36	240.5	+13.8	...	
17.503	116	644	68	377	179.4	+7.4	-27.5		Group 1329.								
18.438	112	653	60	349	180.2	+7.4	-14.4		A faint spot.								
19.474	84	636	44	329	180.5	+7.4	-0.4		Mar. 18.438	1	16	0	8	188.1	+9.2	-6.5	
20.439	76	608	39	324	180.3	+7.8	+12.0		Means ...	...	...	0	8	188.1	+9.2	...	
21.476	106	544	64	315	181.0	+8.0	+26.5		Group 1330.								
22.238	89	461	57	297	180.7	+8.1	+36.2		A large regular spot, <i>a</i> , followed by a number of small spots, which undergo several changes until March 21, when they consist of two clusters, <i>b</i> and <i>c</i> , which are more stable. <i>c</i> has disappeared by March 25; <i>b</i> by March 29. A very small faint spot is also seen following <i>c</i> on March 24. This spot re-appears as a small pair on March 26.								
23.553	52	289	46	259	181.4	+7.4	+54.2		Mar. 18.438	21	174	37	311	120.1	-8.2	-74.5	
24.295	34	253	41	303	181.2	+7.7	+63.8		19.474	72	476	77	502	119.0	-8.4	-61.9	
25.311	30	109	76	274	181.5	+7.7	+77.5		20.439	108	576	80	429	120.4	-8.4	-47.9	
Means ...	...	...	56	322	180.39	+7.48	...		21.476	134	604	81	360	121.4	-8.9	-33.1	
Group 1325.									22.238	138	886	76	487	119.7	-8.7	-24.8	
Three small spots on March 15. Four spots measured in two pairs are seen on March 16 and 17. Only one spot remains on March 18.									23.553	151	1025	76	518	120.5	-9.1	-6.7	
Mar. 15.463	7	54	4	30	207.3	-17.7	-26.5		24.295	144	1032	72	521	121.8	-9.0	+4.4	
16.441	12	36	6	20	208.7	-16.8	-12.3		25.311	184	1042	97	550	122.8	-8.8	+18.8	
17.503	4	28	2	14	208.2	-17.6	+1.3		26.294	145	874	86	518	123.1	-8.7	+32.1	
18.438	0	23	0	12	209.6	-17.0	+15.0		27.314	129	625	94	452	124.2	-8.6	+46.7	
Means ...	...	...	3	19	208.45	-17.28	...		28.250	77	472	74	456	124.5	-8.2	+59.3	
Group 1326.									29.273	39	262	62	419	124.3	-9.1	+72.5	
A small spot on March 16. Other small spots are seen near it on March 17. Only one spot remains on March 18. Two spots are seen on March 19.									Means ...	...	...	76	460	121.82	-8.68	...	
Mar. 16.441	1	8	1	7	166.3	+4.2	-54.7										
17.503	0	32	0	20	167.4	+4.8	-39.5										
18.438	4	31	2	18	168.6	+4.4	-26.0										
19.474	0	64	0	34	169.0	+4.5	-11.9										
Means ...	...	...	1	20	167.83	+4.48	...										

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1331.								Group 1336.							
Two spots appearing suddenly near the centre of the sun on March 19. On March 20 the group consists of 18 spots, extending over a considerable area. It is measured in two clusters on March 20, but in four on March 21 and 22, as it is then more broken up and scattered. On March 23 only two close pairs of small spots remain; and a member of each pair disappears before March 24.								A large regular spot, α , followed March 22-26 by a number of small spots. The small spots undergo frequent changes.							
1884. _d					°	°	°	1884. _d					°	°	°
Mar. 19 ^h 47 ^m 4	16	92	8	48	177°1	+10°4	- 3°8	Mar. 22 ^h 23 ^m 8	22	195	48	481	65°0	-12°2	-79°5
20 ^h 439	60	276	33	148	177°0	+11°9	+ 8°7	23 ^h 553	58	292	57	283	67°7	-11°4	-59°5
21 ^h 476	44	259	26	150	177°7	+12°8	+23°2	24 ^h 295	38	361	29	277	67°8	-11°3	-49°6
22 ^h 238	35	146	23	94	177°1	+13°8	+32°6	25 ^h 311	63	360	40	223	68°2	-11°6	-35°8
23 ^h 553	12	41	10	36	177°5	+13°3	+50°3	26 ^h 294	52	390	28	212	68°9	-11°3	-22°1
24 ^h 295	0	10	0	11	177°9	+13°7	+60°5	27 ^h 314	49	335	25	170	69°7	-11°1	- 7°8
Means ...	...	...	17	81	177°38	+12°65	...	28 ^h 250	39	328	20	166	69°9	-10°9	+ 4°7
								29 ^h 273	16	312	9	164	69°8	-10°8	+18°0
								30 ^h 210	15	258	9	150	70°2	-10°9	+30°8
								31 ^h 257	14	219	10	153	70°4	-10°9	+44°9
								Apr. 1 ^h 280	22	129	21	123	71°0	-10°9	+58°9
								Means ...	...	...	27	218	68°96	-11°21	...
Group 1332.								Group 1337.							
A small faint spot.								Three pairs of very small spots on March 23; two single spots and one pair on March 24.							
Mar. 20 ^h 439	0	8	0	5	204°3	-13°3	+36°0	Mar. 23 ^h 553	4	62	2	34	143°7	+12°4	+16°5
Means ...	...	...	0	5	204°3	-13°3	...	24 ^h 295	6	43	4	25	142°6	+12°7	+25°2
Group 1333.								Means ..	...	...	3	30	143°15	+12°55	...
A small spot.								Group 1338.							
Mar. 20 ^h 439	8	20	4	10	155°6	-15°6	-12°7	A small faint spot.							
Means ...	...	...	4	10	155°6	-15°6	...	Mar. 24 ^h 295	3	7	1	4	125°8	+ 9°9	+ 8°4
Group 1334.								Means ...	...	...	1	4	125°8	+ 9°9	...
A small spot.								Group 1339.							
Mar. 21 ^h 476	4	25	2	14	176°0	+ 6°6	+21°5	A regular spot.							
Means ...	...	...	2	14	176°0	+ 6°6	...	Mar. 24 ^h 295	0	24	0	42	45°2	+ 9°5	-72°2
Group 1335.								25 ^h 311	10	48	10	50	44°9	+ 9°6	-59°1
A small spot.								26 ^h 294	6	22	4	17	45°3	+ 9°5	-45°7
Mar. 21 ^h 476	0	10	0	5	143°0	-18°7	-11°5	27 ^h 314	0	5	0	3	45°3	+ 9°5	-32°2
Means ...	...	...	0	5	143°0	-18°7	...	Means ...	...	...	4	28	45°18	+ 9°53	...
Group 1336.								Group 1339.							
A small spot.								A regular spot.							

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 1340. A very small spot.								Group 1343—continued.							
1884. _a					°	°	°	1884. _a					°	°	°
Mar. 25 ^h 31 ^m 11 ^s	0	3	0	4	37.7	+13.4	-66.3	Apr. 4 ^h 50 ^m 7 ^s	196	2143	158	1706	20.7	-10.1	+51.1
26 ^h 29 ^m 4 ^s	0	5	0	4	38.2	+13.2	-52.8	5 ^h 35 ^m 2 ^s	216	1895	243	2005	20.4	-10.0	+62.1
27 ^h 31 ^m 4 ^s	0	4	0	3	37.7	+13.1	-39.8	6 ^h 20 ^m 3 ^s	124	1289	241	2246	21.1	-10.6	+74.0
								7 ^h 28 ^m 0 ^s	7	160	19	521	15.2	-11.8	+82.3
Means ...	...	...	0	4	37.87	+13.23	...	Means ...	...	...	130	1132	19.11	-10.25	...
Group 1341. A small spot, <i>a</i> . A second, <i>b</i> , appears on March 28. Each increases in size before March 29, and forms a compact cluster of small spots.								Group 1344. Two small spots, <i>a</i> and <i>b</i> .							
Mar. 27 ^h 31 ^m 4 ^s	0	9	0	5	43.8	-7.2	-33.7	Apr. 1 ^h 28 ^m 0 ^s	17	55	10	33	44.3	-12.2	+32.2
28 ^h 25 ^m 0 ^s	0	15	0	8	43.6	-7.3	-21.6	2 ^h 41 ^m 3 ^s	6	69	5	52	45.3	-12.1	+48.2
29 ^h 27 ^m 3 ^s	7	78	3	40	43.7	-7.1	-8.1	3 ^h 23 ^m 4 ^s	2	11	2	11	46.9	-12.0	+60.6
30 ^h 21 ^m 0 ^s	19	111	10	56	43.2	-7.1	+3.8								
31 ^h 25 ^m 7 ^s	6	70	3	37	43.8	-7.1	+18.3	Means ...	...	...	6	32	45.50	-12.10	...
Apr. 1 ^h 28 ^m 0 ^s	6	18	3	10	43.9	-6.9	+31.8	Group 1345. A very small spot.							
Means ...	...	...	3	26	43.67	-7.12	...	Apr. 1 ^h 28 ^m 0 ^s	0	5	0	3	45.5	-18.1	+33.4
Group 1342. A large regular spot, <i>a</i> , followed April 1-4 by several very small spots.								Means ...	...	...	0	3	45.5	-18.1	...
Mar. 29 ^h 27 ^m 3 ^s	4	61	11	154	332.3	-8.8	-79.5	Group 1346. A regular spot.							
30 ^h 21 ^m 0 ^s	8	139	10	174	332.2	-9.0	-67.2	Apr. 2 ^h 41 ^m 3 ^s	4	52	6	77	286.0	-14.6	-71.1
31 ^h 25 ^m 7 ^s	30	220	25	180	332.5	-9.1	-53.0	3 ^h 23 ^m 4 ^s	18	77	17	74	287.2	-14.6	-59.1
Apr. 1 ^h 28 ^m 0 ^s	38	251	24	163	332.5	-9.1	-39.6	4 ^h 50 ^m 7 ^s	10	72	7	49	287.2	-14.2	-42.4
2 ^h 41 ^m 3 ^s	24	232	14	128	332.6	-9.1	-24.5	5 ^h 35 ^m 2 ^s	20	153	10	80	334.0	-9.3	+15.7
3 ^h 23 ^m 4 ^s	36	210	19	108	333.8	-9.1	-12.5	6 ^h 20 ^m 3 ^s	23	133	13	75	334.2	-9.4	+27.1
4 ^h 50 ^m 7 ^s	14	163	7	82	333.9	-9.3	+4.3	7 ^h 28 ^m 0 ^s	8	83	6	55	334.4	-9.1	+41.5
5 ^h 35 ^m 2 ^s	20	153	10	80	334.0	-9.3	+15.7	8 ^h 27 ^m 3 ^s	18	69	15	59	334.2	-8.1	+54.5
6 ^h 20 ^m 3 ^s	23	133	13	75	334.2	-9.4	+27.1	9 ^h 56 ^m 7 ^s	4	27	6	40	333.8	-8.8	+71.1
7 ^h 28 ^m 0 ^s	8	83	6	55	334.4	-9.1	+41.5	Means ...	...	...	13	108	333.37	-9.02	...
8 ^h 27 ^m 3 ^s	18	69	15	59	334.2	-8.1	+54.5	Group 1347. A large regular spot with two well-defined nuclei. Several very small faint spots are seen near it on April 6, 7, and 9.							
9 ^h 56 ^m 7 ^s	4	27	6	40	333.8	-8.8	+71.1	Apr. 2 ^h 41 ^m 3 ^s	9	208	15	337	284.3	-11.0	-72.8
Means ...	...	...	...	...	...	...	...	3 ^h 23 ^m 4 ^s	59	334	60	337	285.3	-11.3	-61.0
Group 1343. Three small spots close together, followed by a fourth at a little distance, on March 31. The group increases in size rapidly, and on April 2 consists of a very large regular spot, <i>a</i> , followed by several spots of various sizes close together. These spots tend to coalesce, and on April 3, 4, and 5 consist of one large spot of irregular outline, <i>b</i> , with two small spots close to it, which are measured with it. The large spot, <i>b</i> , divides in two parts on April 6.								4 ^h 50 ^m 7 ^s	104	812	72	565	285.7	-11.5	-43.9
Mar. 31 ^h 25 ^m 7 ^s	4	106	2	53	17.5	-9.9	-8.0	5 ^h 35 ^m 2 ^s	111	801	66	477	285.6	-11.7	-32.7
Apr. 1 ^h 28 ^m 0 ^s	47	352	24	177	18.9	-9.8	+6.8	6 ^h 20 ^m 3 ^s	106	718	57	389	284.9	-12.0	-22.2
2 ^h 41 ^m 3 ^s	177	1581	98	863	19.4	-9.7	+22.3	7 ^h 28 ^m 0 ^s	83	627	42	319	285.1	-11.6	-7.8
3 ^h 23 ^m 4 ^s	416	2486	251	1484	19.7	-10.1	+33.4	8 ^h 27 ^m 3 ^s	78	617	40	314	285.2	-11.7	+5.5

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Areas and Heliographic Positions of Groups of Sun Spots— <i>continued.</i>																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1347— <i>continued.</i>									Group 1351.								
1884. ^a Apr. 9 ⁵ 67 74 474 40 257 285.2 -11.3 +22.5 10 ⁵ 87 27 221 17 137 285.3 -11.4 +36.1 11 ³ 16 52 229 38 164 285.4 -11.9 +45.9 12 [·] No photograph. (24 131 284.8 -11.9 +59.1) 13 ⁴ 15 6 62 9 98 284.2 -11.9 +72.3 14 ² 82 0 21 0 103 285.6 -11.9 +85.1 Means 37 279 285.12 -11.62 ...									A very large spot. Some small spots, measured as one cluster, appear near its preceding edge on April 9. These are measured with the principal spot on April 13 and following days. 1884. ^a Apr. 3 ² 34 8 171 21 429 266.5 -13.2 -79.8 4 ⁵ 07 53 423 58 463 266.3 -12.6 -63.3 5 ³ 52 77 699 62 562 266.6 -13.1 -51.7 6 ² 03 122 890 80 587 266.9 -13.3 -40.2 7 ² 80 119 1040 67 586 266.6 -13.0 -26.3 8 ² 73 124 1195 64 619 266.4 -13.1 -13.3 9 ⁵ 67 155 1078 78 547 266.8 -12.6 +4.1 10 ⁵ 87 188 1288 99 681 267.0 -12.7 +17.8 11 ³ 16 180 1500 102 856 267.1 -12.9 +27.6 12 [·] No photograph. (83 768 266.9 -12.9 +41.2) 13 ⁴ 15 74 788 64 680 266.7 -12.8 +54.8 14 ² 82 47 519 57 628 266.7 -13.0 +66.2 15 ² 95 15 204 40 540 267.2 -12.7 +80.2 Means 67 611 266.75 -12.92 ...								
Group 1348. A regular spot. Apr. 2 ⁴ 13 1 35 2 74 279.6 -14.4 -77.5 3 ² 34 12 79 14 95 280.0 -14.7 -66.3 4 ⁵ 07 21 97 16 76 279.6 -14.8 -50.0 5 ³ 52 30 110 19 71 279.7 -15.4 -38.6 6 ² 03 24 78 14 45 279.7 -15.6 -27.4 7 ² 80 10 25 5 13 279.8 -15.4 -13.1 8 ² 73 7 20 3 10 280.2 -15.3 +0.5 Means 10 55 279.80 -15.09 ...									Group 1352. A number of small faint spots. They undergo frequent changes. Apr. 4 ⁵ 07 0 89 0 136 258.0 -14.2 -71.6 5 ³ 52 0 139 0 133 259.3 -14.5 -59.0 6 ² 03 6 44 4 33 258.2 -14.3 -48.9 7 ² 80 0 67 0 41 258.4 -14.3 -34.5 8 ² 73 0 45 0 24 259.7 -14.1 -20.0 9 ⁵ 67 0 119 0 60 259.5 -13.6 -3.2 10 ⁵ 87 0 107 0 54 259.5 -12.9 +10.3 11 ³ 16 6 72 3 39 260.3 -12.3 +20.8 Means 1 65 259.11 -13.78 ...								
Group 1349. A very small spot. Apr. 3 ² 34 2 4 1 2 327.6 -23.9 -18.7 Means 1 2 327.6 -23.9 ...									Group 1353. Two small spots, <i>a</i> and <i>b</i> , which tend to move away from each other; <i>b</i> disappears before April 8. Apr. 5 ³ 52 0 16 0 14 267.1 +10.9 -51.2 6 ² 03 18 47 12 32 268.0 +11.2 -39.1 7 ² 80 13 52 7 30 268.1 +11.1 -24.8 8 ² 73 4 22 2 11 270.4 +8.8 -9.3 Means 5 22 268.40 +10.50 ...								
Group 1350. A regular spot. Apr. 3 ² 34 9 58 20 123 268.5 -17.7 -77.8 4 ⁵ 07 16 108 17 111 268.4 -17.7 -61.2 5 ³ 52 22 147 17 116 268.1 -18.1 -50.2 6 ² 03 29 182 19 119 268.1 -18.0 -39.0 7 ² 80 18 200 10 113 267.9 -17.8 -25.0 8 ² 73 36 229 19 120 268.0 -17.5 -11.7 9 ⁵ 67 23 197 12 101 268.1 -16.5 +5.4 10 ⁵ 87 9 195 5 105 268.3 -16.3 +19.1 11 ³ 16 27 140 16 81 268.3 -16.6 +28.8 12 [·] No photograph. (12 79 268.0 -16.4 +42.4) 13 ⁴ 15 8 86 7 76 267.8 -16.2 +55.9 14 ² 82 10 61 12 78 268.1 -16.5 +67.6 15 ² 95 0 5 0 13 267.6 -16.6 +80.6 Means 13 95 268.09 -17.07 ...									Group 1354. Three small spots measured together. Apr. 6 ² 03 5 30 6 36 243.8 +10.3 -63.3 7 ² 80 1 9 1 7 244.3 +10.0 -48.6 Means 4 22 244.05 +10.15 ...								

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1355.								
Two small spots, <i>a</i> and <i>b</i> , which are measured together on April 6. Another small spot is seen near the group on April 7, and again another on April 8. On April 9 only <i>a</i> remains. Some other spots are seen close to and following <i>a</i> on April 10 and 11.								
1884. _a								
Apr. 6 ^h 20 ^m 3	5	26	8	39	235 ^o 5	—18 ^o 1	—71 ^o 6	
7 ^h 28 ^m 0	4	24	4	22	235 ^o 5	—18 ^o 0	—57 ^o 4	
8 ^h 27 ^m 3	10	43	6	29	238 ^o 9	—18 ^o 1	—40 ^o 8	
9 ^h 56 ^m 7	8	45	4	24	242 ^o 9	—17 ^o 6	—19 ^o 8	
10 ^h 58 ^m 7	27	147	14	76	242 ^o 3	—17 ^o 8	—6 ^o 9	
11 ^h 31 ^m 6	33	148	17	76	242 ^o 7	—17 ^o 6	+3 ^o 2	
12 ^h	No photograph.	(10	59	242 ^o 7	—17 ^o 7	+17 ^o 0		
13 ^h 41 ^m 5	4	68	2	41	242 ^o 6	—17 ^o 8	+30 ^o 7	
14 ^h 28 ^m 2	2	17	2	12	243 ^o 2	—18 ^o 0	+42 ^o 7	
Means	...	...	7	42	240 ^o 70	—17 ^o 86	...	
Group 1356.								
Two regular spots, <i>a</i> and <i>b</i> . Two or three small faint spots are seen near them on April 7, 8, 9. By April 11 each spot has broken up into several small spots. On April 13 the group is represented by a close pair of small spots which are measured together. These move apart on the following days.								
Apr. 7 ^h 28 ^m 0	14	125	9	76	261 ^o 5	—19 ^o 9	—31 ^o 4	
8 ^h 27 ^m 3	31	130	17	71	260 ^o 7	—19 ^o 9	—19 ^o 0	
9 ^h 56 ^m 7	11	58	5	30	261 ^o 3	—20 ^o 0	—1 ^o 4	
10 ^h 58 ^m 7	3	49	2	26	261 ^o 4	—20 ^o 2	+12 ^o 2	
11 ^h 31 ^m 6	21	62	12	35	260 ^o 9	—20 ^o 6	+21 ^o 4	
12 ^h	No photograph.	(6	30	261 ^o 0	—20 ^o 6	+35 ^o 4		
13 ^h 41 ^m 5	0	32	0	25	261 ^o 2	—20 ^o 6	+49 ^o 3	
14 ^h 28 ^m 2	0	23	0	25	262 ^o 6	—21 ^o 2	+62 ^o 1	
15 ^h 29 ^m 5	0	12	0	23	262 ^o 3	—21 ^o 1	+75 ^o 3	
Means	...	...	6	38	261 ^o 43	—20 ^o 46	...	
Group 1357.								
A small regular spot.								
Apr. 8 ^h 27 ^m 3	2	14	4	22	208 ^o 2	—9 ^o 6	—71 ^o 5	
9 ^h 56 ^m 7	4	16	4	15	207 ^o 7	—9 ^o 1	—55 ^o 0	
10 ^h 58 ^m 7	0	28	0	19	208 ^o 0	—9 ^o 3	—41 ^o 2	
Means	...	...	3	19	207 ^o 97	—9 ^o 33	...	
Group 1358.								
A regular spot, <i>a</i> . On April 17 several other spots, arranged in two clusters, <i>b</i> and <i>c</i> , appear close to it; <i>a</i> and <i>c</i> coalesce to form one large spot on April 20, and the whole group is measured as one spot on April 21.								
Apr. 9 ^h 56 ^m 7	0	20	0	69	182 ^o 1	+8 ^o 4	—80 ^o 6	
10 ^h 58 ^m 7	7	55	9	73	182 ^o 7	+8 ^o 0	—66 ^o 5	
11 ^h 31 ^m 6	17	120	16	115	182 ^o 5	+8 ^o 2	—57 ^o 0	
12 ^h	No photograph.	(13	120	182 ^o 5	+8 ^o 5	—43 ^o 3		
13 ^h 41 ^m 5	17	209	10	124	182 ^o 4	+8 ^o 7	—29 ^o 5	

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1358—continued.								
1884. _a								
Apr. 14 ^h 28 ^m 2	22	172	12	93	182 ^o 4	+8 ^o 4	—18 ^o 1	
15 ^h 29 ^m 5	34	185	18	95	182 ^o 4	+8 ^o 4	—4 ^o 6	
16 ^h 38 ^m 9	26	154	14	80	182 ^o 6	+8 ^o 5	+10 ^o 0	
17 ^h 28 ^m 0	78	276	43	154	183 ^o 2	+8 ^o 8	+22 ^o 4	
18 ^h 28 ^m 7	53	443	34	284	183 ^o 5	+9 ^o 3	+35 ^o 9	
19 ^h 48 ^m 6	48	474	39	401	183 ^o 4	+10 ^o 1	+51 ^o 7	
20 ^h 19 ^m 6	39	514	42	557	183 ^o 2	+10 ^o 0	+60 ^o 9	
21 ^h 47 ^m 4	0	105	0	264	183 ^o 0	+10 ^o 0	+77 ^o 5	
Means	...	...	19	187	182 ^o 76	+8 ^o 87	...	
Group 1359.								
Two small spots.								
Apr. 11 ^h 31 ^m 6	0	31	0	24	191 ^o 5	+9 ^o 3	—48 ^o 0	
Means	...	...	0	24	191 ^o 5	+9 ^o 3	...	
Group 1360.								
A regular spot. A small spot is seen near it on April 20.								
Apr. 13 ^h 41 ^m 5	0	10	0	38	128 ^o 1	—9 ^o 4	—83 ^o 8	
14 ^h 28 ^m 2	5	44	8	68	128 ^o 7	—9 ^o 6	—71 ^o 8	
15 ^h 29 ^m 5	17	76	16	71	128 ^o 7	—9 ^o 3	—58 ^o 3	
16 ^h 38 ^m 9	18	115	12	79	128 ^o 9	—9 ^o 1	—43 ^o 7	
17 ^h 28 ^m 0	18	137	11	81	128 ^o 5	—9 ^o 1	—32 ^o 3	
18 ^h 28 ^m 7	18	119	9	63	128 ^o 7	—9 ^o 1	—18 ^o 9	
19 ^h 48 ^m 6	8	105	4	53	129 ^o 1	—8 ^o 9	—2 ^o 6	
20 ^h 19 ^m 6	14	140	7	71	129 ^o 1	—9 ^o 2	+6 ^o 8	
21 ^h 47 ^m 4	7	68	4	37	130 ^o 4	—8 ^o 8	+24 ^o 9	
22 ^h 58 ^m 0	7	28	5	18	130 ^o 3	—8 ^o 5	+39 ^o 4	
23 ^h 44 ^m 7	0	30	0	24	130 ^o 5	—8 ^o 5	+51 ^o 1	
Means	...	...	7	55	129 ^o 18	—9 ^o 05	...	
Group 1361.								
Two small faint spots measured together.								
Apr. 14 ^h 28 ^m 2	0	8	0	7	144 ^o 4	—7 ^o 5	—56 ^o 1	
Means	...	...	0	7	144 ^o 4	—7 ^o 5	...	
Group 1362.								
A small spot <i>a</i> . A second is seen near it on April 16.								
Apr. 15 ^h 29 ^m 5	8	25	5	17	227 ^o 4	+3 ^o 9	+40 ^o 4	
16 ^h 38 ^m 9	3	23	3	21	228 ^o 1	+4 ^o 0	+55 ^o 5	
17 ^h 28 ^m 0	0	12	0	17	229 ^o 3	+3 ^o 3	+68 ^o 5	
Means	...	...	3	18	228 ^o 27	+3 ^o 73	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1363.							
Two regular spots, <i>a</i> and <i>b</i> . Small spots begin to appear on April 17, and a spot of some size, <i>c</i> , on April 18. By April 19 <i>b</i> has extended itself in a remarkable manner, and another spot, <i>d</i> , is seen. This disappears before April 24, <i>b</i> and <i>c</i> disappearing before April 26.							
1884. _d Apr. 15 ²⁹⁵	23	191	34	279	116.3	-10.2	-70.7
16 ³⁸⁹	49	421	43	373	116.5	-9.6	-56.1
17 ²⁸⁰	75	443	52	304	117.4	-9.8	-43.4
18 ²⁸⁷	82	554	48	321	117.3	-9.7	-30.3
19 ⁴⁸⁶	77	871	40	452	117.0	-9.6	-14.7
20 ¹⁹⁶	94	824	48	418	116.7	-9.7	-5.6
21 ⁴⁷⁴	76	644	39	332	117.5	-9.5	+12.0
22 ⁵⁸⁰	40	429	23	243	118.9	-9.2	+28.0
23 ⁴⁴⁷	13	207	9	135	119.4	-9.4	+40.0
24 ⁴³⁸	19	133	16	112	120.9	-9.2	+54.6
25 ³⁰⁷	16	115	20	141	121.0	-9.3	+66.2
26 ⁵⁰¹	0	12	0	40	120.9	-9.0	+81.9
Means ...	...	...	31	263	118.32	-9.52	...
Group 1364.							
Two very small spots measured together.							
Apr. 15 ²⁹⁵	0	19	0	10	174.4	-22.8	-12.6
Means ...	...	...	0	10	174.4	-22.8	...
Group 1365.							
A small faint spot.							
Apr. 16 ³⁸⁹	0	10	0	6	152.3	+16.2	-20.3
Means ...	...	...	0	6	152.3	+16.2	...
Group 1366.							
A small spot, <i>a</i> , followed by several yet smaller spots; <i>a</i> increases in size on April 17 and 18, and shows considerable proper motion. The other spots have disappeared by April 21.							
Apr. 16 ³⁸⁹	9	40	5	26	136.8	+9.3	-35.8
17 ²⁸⁰	15	52	8	29	138.7	+8.9	-22.1
18 ²⁸⁷	25	144	13	74	140.0	+9.7	-7.6
19 ⁴⁸⁶	24	171	13	90	139.1	+10.4	+7.4
20 ¹⁹⁶	8	144	4	79	140.9	+10.4	+18.6
21 ⁴⁷⁴	0	51	0	33	141.8	+10.6	+36.3
22 ⁵⁸⁰	0	21	0	17	141.9	+10.4	+51.0
Means ...	...	...	6	50	139.89	+9.96	...
Group 1367.							
A small spot.							
1884. _d Apr. 18 ²⁸⁷	7	11	6	10	205.1	-9.3	+57.5
Means ...	...	...	6	10	205.1	-9.3	...
Group 1368.							
A regular spot, <i>a</i> , followed on April 19 and 20 by two other spots.							
Apr. 18 ²⁸⁷	0	4	0	14	65.6	-20.5	-82.0
19 ⁴⁸⁶	0	28	0	37	64.2	-20.9	-67.5
20 ¹⁹⁶	12	127	11	122	63.7	-20.6	-58.6
21 ⁴⁷⁴	0	84	0	55	67.0	-20.6	-38.5
22 ⁵⁸⁰	0	78	0	44	66.9	-20.3	-24.0
23 ⁴⁴⁷	0	52	0	27	67.0	-20.3	-12.4
24 ⁴³⁸	0	14	0	7	67.3	-20.4	+1.0
25 ³⁰⁷	0	3	0	2	66.8	-20.4	+12.0
Means ...	...	...	1	39	66.06	-20.50	...
Group 1369.							
A regular spot, <i>a</i> , followed by a second and smaller spot on April 20. A number of small spots have formed behind <i>a</i> by April 22. These are measured all together, or in two or three divisions, according to their arrangement, which changes greatly from day to day. Only <i>a</i> remains on April 29.							
Apr. 19 ⁴⁸⁶	0	47	0	99	54.6	-14.4	-77.1
20 ¹⁹⁶	36	144	46	200	52.9	-13.8	-69.4
21 ⁴⁷⁴	40	206	31	158	56.0	-13.6	-49.5
22 ⁵⁸⁰	41	330	25	206	55.2	-14.1	-35.7
23 ⁴⁴⁷	33	511	18	282	55.1	-14.0	-24.3
24 ⁴³⁸	79	476	40	245	56.0	-14.1	-10.3
25 ³⁰⁷	101	556	52	284	56.6	-14.1	+1.8
26 ⁵⁰¹	103	515	55	274	57.2	-14.2	+18.2
27 ²¹⁷	62	481	36	277	57.8	-14.0	+28.3
28 ^{...}	No photograph.		(48	219	58.3	-14.0	+43.6)
29 ⁴⁵⁸	62	165	60	161	58.8	-14.1	+58.9
30 ⁴²³	6	118	10	183	58.6	-14.0	+71.4
May 1 ³¹⁴	0	52	0	189	58.0	-13.8	+82.6
Means ...	...	...	32	214	56.55	-14.02	...
Group 1370.							
Three small spots on April 21. The first two spots coalesce to form a large spot on April 22, and a new spot appears on the same day. The group increases in size and has undergone yet further change by April 23.							
Apr. 21 ⁴⁷⁴	8	102	5	64	143.1	-8.7	+37.6
22 ⁵⁸⁰	83	482	69	398	143.8	-7.9	+52.9
23 ⁴⁴⁷	75	451	103	566	146.3	-7.5	+66.9
24 ⁴³⁸	18	148	37	289	141.9	-9.3	+75.6
Means ...	...	...	54	329	143.78	-8.35	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1371.								Group 1374.							
A magnificent group composed of a very large regular spot, <i>a</i> , followed at a considerable distance by another regular spot, with which it is connected by a stream of smaller spots, which undergo great changes; <i>b</i> has broken up before April 29. Occasionally one or two small spots are seen in advance of <i>a</i> . The entire group, with the exception of <i>a</i> , has disappeared by May 2.								A small spot, <i>a</i> , which has disappeared by May 5, when another small spot, <i>b</i> , appears.							
1884. <i>a</i>					°	°	°	1884. <i>a</i>					°	°	°
Apr. 21.474	54	228	140	578	26.2	-9.6	-79.3	May 1.314	0	14	0	21	264.5	-12.2	-70.9
22.580	138	680	166	815	25.2	-9.3	-65.7	2.448	0	27	0	24	264.2	-10.9	-56.2
23.447	113	1143	94	1002	23.9	-10.4	-55.5	3.553	0	37	0	25	264.7	-9.9	-41.1
24.438	239	1864	163	1276	23.0	-10.7	-43.3	4.524	6	56	4	32	265.0	-10.6	-27.9
25.307	384	1985	227	1177	23.0	-10.9	-31.8	5.445	0	48	0	26	260.9	-9.8	-19.9
26.501	344	2366	180	1239	22.8	-11.2	-16.2	6.417	0	17	0	8	260.8	-10.0	-7.1
27.217	342	2162	176	1106	23.1	-11.0	-6.4	Means	...	...	1	23	263.35	-10.57	...
28.	No photograph.		(128	989	23.2	-11.0	+8.5)	Group 1375.							
29.458	138	1570	79	872	23.3	-10.9	+23.4	Two small spots, <i>a</i> and <i>b</i> . A third, <i>c</i> , appears on May 5. On May 7 the group consists of a cluster of very small spots followed by a single very small spot. Of this cluster only one spot remains on May 8.							
30.423	74	1180	48	760	25.5	-10.3	+38.3	May 3.553	0	56	0	58	244.8	-12.7	-61.0
May 1.314	87	845	70	665	25.6	-10.1	+50.2	4.524	0	41	0	32	243.5	-13.3	-49.4
2.448	50	331	65	434	27.8	-10.3	+67.8	5.445	0	128	0	83	243.2	-14.2	-37.6
3.553	0	97	0	353	28.4	-12.2	+82.6	6.417	0	64	0	36	244.3	-14.2	-23.6
Means	...	...	118	867	24.69	-10.61	...	7.175	18	49	9	26	245.1	-15.0	-12.8
Group 1372.								8.252	0	12	0	6	243.8	-15.8	+0.1
Two small spots, <i>a</i> and <i>b</i> ; <i>b</i> has disappeared by April 27.								Means	...	...	2	40	244.12	-14.20	...
Apr. 22.580	10	88	5	47	79.8	-20.6	-11.1	Group 1376.							
23.447	16	185	8	96	79.2	-20.2	-0.2	A number of small spots irregularly distributed over a considerable area. The preceding spot increases in size, and by May 9 has become a large regular spot, <i>a</i> .							
24.438	15	103	9	56	80.0	-20.7	+13.7	May 6.417	0	71	0	48	228.9	+11.2	-39.0
25.307	10	35	6	20	79.4	-20.8	+24.6	7.175	13	73	8	42	230.8	+9.2	-27.1
26.501	3	28	2	19	80.9	-20.6	+41.9	8.252	12	120	6	64	233.1	+9.4	-10.6
27.217	0	6	0	5	81.8	-20.5	+52.3	9.520	67	619	35	319	233.9	+9.1	+7.0
Means	...	...	5	41	80.18	-20.57	...	10.	No photograph.		(52	431	234.3	+9.4	+18.2)
Group 1373.								11.162	114	910	68	542	234.6	+9.6	+29.4
A number of spots closely following one another. The group undergoes striking and frequent changes, the different members increasing and diminishing, coalescing and breaking up from day to day.								12.276	71	728	53	531	235.2	+9.7	+44.7
Apr. 26.501	0	44	0	65	328.4	-14.8	-70.6	13.231	56	529	51	503	234.7	+9.4	+56.9
27.217	42	269	40	257	331.2	-15.2	-58.3	14.287	32	358	52	561	234.4	+9.7	+70.5
28.	No photograph.		(30	333	332.0	-14.9	-42.8)	15.280	5	111	11	267	228.1	+10.4	+77.4
29.458	33	709	19	409	332.7	-14.5	-27.2	Means	...	...	34	331	232.80	+9.71	...
30.423	60	1023	31	538	333.4	-14.8	-13.8	Group 1377.							
May 1.314	97	1184	50	609	334.1	-14.8	-1.3	A small spot.							
2.448	118	850	62	446	334.1	-14.8	+13.7	May 6.417	0	21	0	26	203.7	+14.0	-64.2
3.553	29	696	17	414	335.4	-16.0	+29.6	7.175	5	18	5	16	203.4	+12.0	-54.5
4.524	33	543	23	373	335.1	-16.1	+42.2	8.252	6	19	4	13	203.7	+11.7	-40.0
5.445	50	670	44	584	335.3	-15.9	+54.5	9.520	0	27	0	15	204.3	+13.3	-22.6
6.417	27	435	36	551	335.7	-16.5	+67.8	10.	No photograph.		(1	13	204.3	+13.0	-11.8)
7.175	11	325	20	719	335.3	-14.3	+77.4	11.162	5	19	2	10	204.2	+12.8	-1.0
Means	...	...	31	442	333.56	-15.22	...	Means	...	...	2	16	203.93	+12.80	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1378.							
Two small spots, α and b ; α disappears before May 8.							
1884. α							
May 7 ^h 17 ^m 5	7	47	4	28	290°6	— 4°2	+ 32°7
8 ^h 25 ^m 2	4	12	3	9	290°4	— 4°2	+ 46°7
Means ...	...	...	4	19	290°50	— 4°20	...
Group 1379.							
A small spot.							
May 7 ^h 17 ^m 5	0	33	0	43	191°8	+ 9°1	— 66°1
8 ^h 25 ^m 2	3	18	2	14	193°1	+ 8°6	— 50°6
Means ...	...	...	1	29	192°45	+ 8°85	...
Group 1380.							
A number of small spots which undergo great changes from day to day.							
May 7 ^h 17 ^m 5	0	96	0	190	183°1	+ 9°0	— 74°8
8 ^h 25 ^m 2	10	118	10	121	183°7	+ 8°2	— 60°0
9 ^h 52 ^m 0	10	124	7	88	183°5	+ 8°8	— 43°4
10 ^h	No photograph.	(16	176	184°0	+ 7°9	— 32°1)	
11 ^h 16 ^m 2	46	478	25	263	184°4	+ 7°0	— 20°8
12 ^h 27 ^m 6	34	428	18	221	184°8	+ 6°3	— 5°7
13 ^h 23 ^m 1	24	264	12	137	185°1	+ 6°3	+ 7°3
14 ^h 28 ^m 7	18	153	10	84	185°4	+ 5°4	+ 21°5
15 ^h 28 ^m 0	7	48	4	30	185°3	+ 5°0	+ 34°6
16 ^h 28 ^m 1	5	23	4	17	185°8	+ 6°2	+ 48°3
Means ...	...	...	11	133	184°51	+ 7°01	...
Group 1381.							
A very large, regular spot, α . Small spots are seen near it on May 13, 14, 15, 16, and 19.							
May 9 ^h 52 ^m 0	17	204	27	337	154°4	— 6°0	— 72°5
10 ^h	No photograph.	(72	488	154°0	— 6°9	— 62°0)	
11 ^h 16 ^m 2	144	791	117	639	153°6	— 7°8	— 51°6
12 ^h 27 ^m 6	156	1006	98	633	153°5	— 8°0	— 37°0
13 ^h 23 ^m 1	218	1090	122	609	153°0	— 7°8	— 24°8
14 ^h 28 ^m 7	226	1176	116	604	153°3	— 7°9	— 10°6
15 ^h 28 ^m 0	221	1229	111	617	153°2	— 7°7	+ 2°5
16 ^h 28 ^m 1	259	1153	135	604	152°9	— 7°4	+ 15°4
17 ^h 27 ^m 3	166	1028	95	588	152°3	— 7°7	+ 28°0
18 ^h 14 ^m 7	178	900	116	588	152°6	— 7°7	+ 39°8
19 ^h 29 ^m 3	139	818	121	716	152°6	— 7°2	+ 54°9
20 ^h	No photograph.	(109	646	152°6	— 7°6	+ 68°2)	
21 ^h 30 ^m 3	29	176	96	576	152°5	— 8°0	+ 81°4
Means ...	...	...	103	588	153°12	— 7°52	...
Group 1382.							
A small regular spot, α , followed by a stream of very small faint spots, which disappear by May 12; α moves rapidly forward between May 11 and 12, and after May 12 it moves slowly backward. Another spot appears near it on May 14.							
1884. α							
May 11 ^h 16 ^m 2	2	66	1	36	220°8	+ 11°5	+ 15°6
12 ^h 27 ^m 6	6	19	4	12	225°3	+ 11°0	+ 34°8
13 ^h 23 ^m 1	6	45	5	34	224°6	+ 10°3	+ 46°8
14 ^h 28 ^m 7	4	47	4	48	223°4	+ 10°2	+ 59°5
15 ^h 28 ^m 0	6	68	9	112	222°4	+ 9°4	+ 71°7
Means ...	...	...	5	48	223°30	+ 10°48	...
Group 1383.							
A small spot, α , followed by several very small spots; α disappears before May 14.							
May 11 ^h 16 ^m 2	11	31	8	22	161°2	+ 12°3	— 44°0
12 ^h 27 ^m 6	0	78	0	48	158°8	+ 12°1	— 31°7
13 ^h 23 ^m 1	3	39	2	22	159°4	+ 12°4	— 18°4
14 ^h 28 ^m 7	0	64	0	33	158°3	+ 12°1	— 5°6
15 ^h 28 ^m 0	0	34	0	18	157°6	+ 12°4	+ 6°9
Means ...	...	...	2	29	159°06	+ 12°26	...
Group 1384.							
A small spot.							
May 11 ^h 16 ^m 2	0	16	0	29	132°4	+ 6°4	— 72°8
12 ^h 27 ^m 6	4	16	4	16	132°2	+ 6°6	— 58°3
Means ...	...	...	2	23	132°30	+ 6°50	...
Group 1385.							
A regular spot.							
May 11 ^h 16 ^m 2	1	12	2	41	123°7	— 8°5	— 81°5
12 ^h 27 ^m 6	8	40	9	51	123°6	— 8°4	— 66°9
13 ^h 23 ^m 1	8	45	7	39	123°6	— 8°5	— 54°2
14 ^h 28 ^m 7	11	36	7	24	123°9	— 8°7	— 40°0
15 ^h 28 ^m 0	0	16	0	9	124°1	— 8°8	— 26°6
16 ^h 28 ^m 1	0	14	0	7	124°3	— 8°6	— 13°2
Means ...	...	...	4	29	123°87	— 8°58	...
Group 1386.							
A small spot.							
May 12 ^h 27 ^m 6	0	9	0	11	254°8	+ 10°0	+ 64°3
Means ...	...	...	0	11	254°8	+ 10°0	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.					
Group 1387.								Group 1390.							
Two small spots close together on May 12. The group diminishes in size until about May 14, and then increases. It undergoes continual change in the number, size, and arrangement of the spots composing it. It is measured as a whole until May 16.								A small spot.							
1884. _d May 12 ²⁷⁶	0	19	0	10	173.7	+ 6.6	- 16.8	1884. _d May 16 ²⁸¹ 17 ²⁷³	1 0	10 11	4 0	35 14	55.8 57.1	- 3.9 - 3.7	- 81.7 - 67.2
13 ²³¹	0	9	0	5	173.3	+ 7.4	- 4.5	Means ...	...	...	2	25	56.45	- 3.80	...
14 ²⁸⁷	0	13	0	7	172.9	+ 5.9	+ 9.0	Group 1391.							
15 ²⁸⁰	0	36	0	20	173.7	+ 6.0	+ 23.0	Two small spots, <i>a</i> and <i>b</i> . They move rapidly apart, and <i>b</i> disappears before May 19.							
16 ²⁸¹	14	72	9	47	177.4	+ 6.9	+ 39.9	May 17 ²⁷³	0	31	0	20	158.2	+ 13.7	+ 33.9
17 ²⁷³	0	68	0	57	176.4	+ 6.0	+ 52.1	18 ¹⁴⁷	7	42	5	33	159.6	+ 13.3	+ 46.8
18 ¹⁴⁷	0	18	0	18	174.5	+ 6.5	+ 61.7	19 ²⁹³	1	7	1	9	162.0	+ 12.7	+ 64.3
Means ...	...	...	1	23	174.56	+ 6.47	...	Means ...	...	...	2	21	159.93	+ 13.23	...
Group 1388.								Group 1392.							
A regular spot, <i>a</i> . Some very small spots are seen near it on May 17, 18, 21, 22, and 24.								A spot of irregular outline. It has broken up into a number of small spots by May 21.							
May 15 ²⁸⁰	7	56	17	127	73.5	- 2.2	- 77.2	May 17 ²⁷³	0	49	0	94	49.4	- 4.3	- 74.9
16 ²⁸¹	24	136	27	155	73.6	- 2.0	- 63.9	18 ¹⁴⁷	7	54	7	60	49.7	- 3.3	- 63.1
17 ²⁷³	33	248	27	197	73.6	- 1.7	- 50.7	19 ²⁹³	7	116	6	85	50.7	- 4.1	- 47.0
18 ¹⁴⁷	41	301	27	194	73.6	- 1.7	- 39.2	20 ⁰	No photograph.	(30	187	74.7	- 2.1	- 9.7)	
19 ²⁹³	50	335	27	183	74.4	- 1.7	- 23.3	21 ³⁰³	2	70	1	38	51.2	- 4.4	- 19.9
20 ⁰	No photograph.	(30	187	74.7	- 2.1	- 9.7)		Means ...	...	...	4	68	50.40	- 4.08	...
21 ³⁰³	68	382	34	191	75.0	- 2.4	+ 3.9	Group 1393.							
22 ³¹⁴	70	367	37	195	75.7	- 2.4	+ 18.0	A regular spot. It shows a large proper motion in longitude between May 29 and 30.							
23 ³¹⁸	51	264	32	168	75.4	- 2.7	+ 31.0	May 18 ¹⁴⁷	14	57	65	275	28.6	- 9.9	- 84.2
24 ⁵⁷³	40	260	30	198	76.2	- 3.1	+ 48.4	19 ²⁹³	47	235	65	328	28.7	- 9.9	- 69.0
25 ¹⁴⁴	34	183	30	164	76.6	- 3.1	+ 56.3	20 ⁰	No photograph.	(62	305	28.7	- 9.9	- 55.8)	
26 ²³¹	9	111	14	168	76.5	- 3.0	+ 70.7	21 ³⁰³	84	409	59	281	28.6	- 9.9	- 42.5
27 ¹²³	3	41	12	146	76.0	- 3.0	+ 82.0	22 ³¹⁴	100	483	58	279	28.8	- 9.6	- 28.9
Means ...	...	...	26	175	74.98	- 2.39	...	23 ³¹⁸	98	489	55	277	28.4	- 9.4	- 16.0
Group 1389.								24 ⁵⁷³	90	437	46	223	28.6	- 9.3	+ 0.8
Two regular spots in contact with each other and measured together; the smaller spot diminishes in size and breaks up before May 24, disappearing before May 26. Several small spots are seen near the large spots on May 19-25.								25 ¹⁴⁴	131	480	66	244	29.1	- 9.5	+ 8.8
May 16 ²⁸¹	19	134	39	276	61.4	- 14.4	- 76.1	26 ²³¹	98	477	54	263	28.9	- 9.4	+ 23.1
17 ²⁷³	28	251	31	279	61.5	- 14.7	- 62.8	27 ¹²³	84	409	51	252	29.0	- 9.5	+ 35.0
18 ¹⁴⁷	46	340	38	276	61.6	- 14.7	- 51.2	28 ²⁹⁴	58	325	46	258	29.4	- 8.2	+ 50.8
19 ²⁹³	73	504	47	320	61.7	- 15.2	- 36.0	29 ¹⁵⁵	40	219	43	236	29.3	- 8.0	+ 62.1
20 ⁰	No photograph.	(49	304	61.4	- 14.9	- 23.0)		30 ⁵⁶⁴	0	99	0	220	24.8	- 8.7	+ 76.3
21 ³⁰³	96	554	51	287	61.1	- 14.6	- 10.0	Means ...	...	...	52	265	28.53	- 9.32	...
22 ³¹⁴	132	849	69	439	62.0	- 14.1	+ 4.3								
23 ³¹⁸	88	522	51	302	61.1	- 13.9	+ 16.7								
24 ⁵⁷³	40	322	25	197	60.5	- 13.3	+ 32.7								
25 ¹⁴⁴	54	336	37	229	61.7	- 13.2	+ 41.4								
26 ²³¹	24	181	21	163	61.2	- 13.3	+ 55.4								
27 ¹²³	14	125	19	167	61.7	- 13.3	+ 67.7								
28 ²⁹⁴	4	33	19	156	62.6	- 11.6	+ 84.0								
Means ...	...	...	38	261	61.50	- 13.94	...								

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1394.								
A regular spot, α . A few small faint spots are occasionally seen near it.								
1884. α								
May 22:314	6	47	18	149	337.8	+17.8	-79.9	
23:318	18	125	27	190	336.9	+17.8	-67.5	
24:573	17	164	14	137	336.9	+18.1	-49.9	
25:144	41	232	30	169	337.0	+18.1	-43.3	
26:231	43	287	26	176	336.5	+18.3	-29.3	
27:123	52	261	29	145	336.8	+18.5	-17.2	
28:294	46	280	25	147	336.6	+18.0	-2.0	
29:155	52	273	28	147	337.1	+18.0	+9.9	
30:564	33	211	20	126	337.6	+17.7	+29.1	
31:155	33	207	22	136	337.5	+18.4	+36.8	
June 1:218	21	124	18	103	337.0	+18.6	+50.4	
Means ...	...	...	23	148	337.06	+18.12	...	
Group 1395.								
A regular spot. Two small spots are seen near it on May 28.								
May 22:314	7	46	30	202	334.1	-15.4	-83.6	
23:318	17	93	29	157	333.3	-15.3	-71.1	
24:573	17	204	15	176	334.5	-15.1	-53.3	
25:144	38	244	28	180	334.3	-15.5	-46.0	
26:231	51	293	31	177	334.3	-15.7	-31.5	
27:123	54	344	30	189	334.5	-15.7	-19.5	
28:294	43	352	22	182	335.4	-15.8	-3.2	
29:155	59	326	31	171	335.2	-15.6	+8.0	
30:564	42	230	24	132	334.2	-15.1	+25.7	
31:155	16	197	10	122	335.2	-14.7	+34.5	
June 1:218	22	148	17	113	334.6	-14.3	+48.0	
2.	No photograph.	(14	88	334.4	-15.0	+60.9)		
3:184	6	34	10	62	334.2	-15.6	+73.7	
Means ...	...	...	22	150	334.48	-15.29	...	
Group 1396.								
A large and irregular group composed of a great number of small spots, which change in number, area, and arrangement from day to day. The umbra of the last spot of the group is completely hidden by the wire on May 26, and its area is merely estimated.								
May 23:318	2	115	4	249	328.9	-12.2	-75.5	
24:573	0	314	0	303	329.8	-11.9	-58.0	
25:144	31	317	25	255	329.5	-12.1	-50.8	
26:231	34	377	21	238	329.7	-11.6	-36.1	
27:123	69	440	38	244	330.5	-11.3	-23.5	
28:294	68	478	35	245	330.8	-11.6	-7.8	
29:155	105	635	53	325	330.7	-11.0	+3.5	
30:564	153	594	83	326	330.2	-10.7	+21.7	
31:155	73	836	43	491	330.9	-10.6	+30.2	
Group 1396—continued.								
1884. α								
June 1:218	52	600	35	420	330.5	-10.2	+43.9	
2.	No photograph.	(18	283	330.7	-10.9	+57.1)		
3:184	0	96	0	146	330.8	-11.6	+70.3	
Means ...	...	...	30	294	330.25	-11.31	...	
Group 1397.								
A regular spot which decreases in size after May 25.								
May 23:318	0	13	0	43	324.2	-24.4	-80.2	
24:573	0	23	0	27	325.1	-24.0	-62.7	
25:144	12	38	11	36	325.0	-24.7	-55.3	
26:231	8	37	6	27	325.1	-24.6	-40.7	
27:123	10	22	6	14	325.2	-24.7	-28.8	
28:294	0	11	0	6	325.9	-24.9	-12.7	
Means ...	...	...	4	26	325.08	-24.55	...	
Group 1398.								
A regular spot which decreases in size after May 25. It divides into two portions on May 28.								
May 24:573	0	79	0	136	315.6	-23.7	-72.2	
25:144	13	142	17	179	315.5	-24.6	-64.8	
26:231	23	147	19	127	314.7	-24.4	-51.1	
27:123	12	106	9	75	314.3	-24.5	-39.7	
28:294	10	77	6	46	314.7	-25.0	-23.9	
Means ...	...	...	10	113	314.96	-24.44	...	
Group 1399.								
Three small spots, measured together.								
May 25:144	3	16	2	11	62.7	-4.0	+42.4	
Means ...	...	...	2	11	62.7	-4.0	...	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1400.							
A small spot on May 25. It increases in size, and other spots appear, until on May 28 and the succeeding days the group consists of two large regular spots, <i>a</i> and <i>b</i> , with some smaller spots between them; <i>b</i> has disappeared by June 3.							
1884. _a May 25 ¹⁴⁴	0	7	0	6	330.1	+14.9	-50.2
26 ²³¹	8	44	5	30	326.6	+14.7	-39.2
27 ¹²³	63	204	36	119	326.5	+15.4	-27.5
28 ²⁹⁴	150	826	79	437	325.4	+14.7	-13.2
29 ¹⁵⁵	142	868	74	455	328.1	+15.3	+0.9
30 ⁵⁶⁴	76	431	43	241	328.0	+16.1	+19.5
31 ¹⁵⁹	41	331	25	200	330.3	+16.3	+29.6
June 1 ²¹⁸	32	177	23	130	331.3	+16.3	+44.7
2	No photograph.		(15	89	332.6	+15.2	+59.1)
3 ¹⁸⁴	4	26	7	47	333.9	+14.0	+73.4
Means ...	...	...	31	175	329.28	+15.29	...
Group 1401.							
A very small spot.							
May 29 ¹⁵⁵	0	7	0	5	289.7	-16.7	-37.5
Means ...	...	...	0	5	289.7	-16.7	...
Group 1402.							
Two very small spots measured together.							
May 29 ¹⁵⁵	0	11	0	14	259.4	-7.8	-67.8
Means ...	...	...	0	14	259.4	-7.8	...
Group 1403.							
A regular spot, <i>a</i> , followed by some smaller spots. The latter have disappeared by June 4.							
May 30 ⁵⁶⁴	0	167	0	249	239.3	+9.4	-69.2
31 ¹⁵⁹	21	222	23	253	236.9	+7.2	-63.8
June 1 ²¹⁸	40	324	31	251	237.2	+7.4	-49.4
2	No photograph.		(36	224	237.7	+7.9	-35.9)
3 ¹⁸⁴	75	361	40	197	238.2	+8.3	-22.3
4 ³²¹	23	393	12	201	238.7	+8.3	-6.8
5	No photograph.		(27	205	238.7	+8.2	+5.5)
6 ¹⁸⁵	77	390	41	208	238.6	+8.0	+17.7
7 ¹⁶⁷	70	306	41	179	238.4	+7.9	+30.6
Means ...	...	...	28	219	238.19	+8.07	...
Group 1404.							
A regular spot, <i>a</i> . Several very small spots are seen near it on June 3, 4, and 11. On June 11 these are measured with the principal spot.							
1884. _a May 30 ⁵⁶⁴	0	102	0	155	235.7	-14.3	-72.8
31 ¹⁵⁹	11	127	16	177	232.4	-17.2	-68.3
June 1 ²¹⁸	21	188	19	166	232.6	-17.3	-54.0
2	No photograph.	(25	173	232.5	-16.7	-41.1)	
3 ¹⁸⁴	51	306	30	180	232.4	-16.1	-28.1
4 ³²¹	43	308	23	165	232.7	-15.9	-12.8
5	No photograph.	(30	173	232.5	-15.9	-0.7)	
6 ¹⁸⁵	69	338	37	180	232.3	-15.9	+11.4
7 ¹⁶⁷	61	360	35	206	232.4	-15.6	+24.6
8	No photograph.	(26	170	231.8	-15.5	+38.1)	
9	No photograph.	(18	134	231.2	-15.3	+51.6)	
10	No photograph.	(9	98	230.6	-15.2	+65.1)	
11 ⁴³⁴	0	23	0	62	230.0	-15.0	+78.6
Means ...	...	...	21	157	232.24	-15.84	...
Group 1405.							
A regular spot, <i>a</i> . It divides into two parts on June 3, but these are still measured together. A very small spot is seen near <i>a</i> on June 3.							
May 31 ¹⁵⁹	5	22	15	64	220.9	-17.7	-79.8
June 1 ²¹⁸	9	58	11	68	222.8	-17.7	-63.8
2	No photograph.	(17	91	222.7	-16.8	-50.9)	
3 ¹⁸⁴	34	173	22	114	222.5	-15.8	-38.0
4 ³²¹	24	170	13	96	223.0	-15.8	-22.5
5	No photograph.	(17	93	223.2	-16.0	-10.0)	
6 ¹⁸⁵	38	173	20	90	223.3	-16.1	+2.4
7 ¹⁶⁷	28	132	15	71	223.6	-15.8	+15.8
8	No photograph.	(11	61	223.6	-15.7	+29.9)	
9	No photograph.	(8	52	223.7	-15.7	+44.0)	
10	No photograph.	(4	43	223.7	-15.7	+58.2)	
11 ⁴³⁴	0	19	0	33	223.7	-15.6	+72.3
Means ...	...	...	13	73	223.06	-16.20	...
Group 1406.							
Several small faint spots. The greater number have disappeared by June 4.							
June 3 ¹⁸⁴	0	40	0	32	211.8	-19.0	-48.7
4 ³²¹	0	11	0	7	209.2	-20.7	-36.3
Means ...	...	...	0	20	210.50	-19.85	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1407.							
A great number of small spots. The spots greatly diminish in size, and become much more scattered between June 4 and 6.							
1884. ^a June 3 ^h 18 ^m 4	19	365	21	420	195.6	+ 9.4	- 63.9
4 ^h 32 ^m 1	24	322	18	247	197.0	+ 9.3	- 48.5
5	No photograph.	(16	184	196.5	+ 9.4	- 36.7)	
6 ^h 18 ^m 5	22	214	13	120	196.0	+ 9.4	- 24.9
7 ^h 16 ^m 7	7	79	3	40	197.7	+ 9.1	- 10.1
Means ...	...	...	14	202	196.76	+ 9.32	...
Group 1408.							
Two small spots, <i>a</i> and <i>b</i> . Only <i>a</i> remains on June 7.							
June 6 ^h 18 ^m 5	8	35	5	21	251.8	+ 18.3	+ 30.9
7 ^h 16 ^m 7	0	9	0	7	253.7	+ 18.7	+ 45.9
Means ...	...	...	3	14	252.75	+ 18.50	...
Group 1409.							
A large regular spot, <i>a</i> , followed by a small spot, <i>b</i> . The latter has disappeared by June 11.							
June 6 ^h 18 ^m 5	25	138	33	184	153.1	- 7.4	- 67.8
7 ^h 16 ^m 7	32	249	28	223	152.1	- 7.3	- 55.7
8	No photograph.	(28	217	152.2	- 7.1	- 41.6)	
9	No photograph.	(28	212	152.2	- 6.9	- 27.4)	
10	No photograph.	(28	207	152.2	- 6.7	- 13.3)	
11 ^h 43 ^m 4	56	396	28	201	152.3	- 6.5	+ 0.9
12 ^h 45 ^m 7	69	356	36	184	151.9	- 6.2	+ 14.1
13 ^h 12 ^m 3	49	332	27	182	152.5	- 6.4	+ 23.4
14 ^h 59 ^m 1	48	265	33	183	152.1	- 5.9	+ 42.5
15 ^h 43 ^m 5	43	198	36	169	152.1	- 6.2	+ 53.6
16 ^h 56 ^m 6	2	77	3	108	152.3	- 6.0	+ 68.8
Means ...	...	...	28	188	152.27	- 6.60	...
Group 1410.							
A regular spot.							
June 11 ^h 43 ^m 4	2	42	3	68	79.5	- 2.1	- 71.9
12 ^h 45 ^m 7	11	85	10	81	79.3	- 1.9	- 58.5
13 ^h 12 ^m 3	18	109	13	83	79.8	- 2.1	- 49.3
14 ^h 59 ^m 1	18	148	11	87	79.7	- 2.2	- 29.9
15 ^h 43 ^m 5	32	170	17	90	79.8	- 2.1	- 18.7
16 ^h 56 ^m 6	21	149	11	75	80.3	- 2.2	- 3.2
17	No photograph.	(8	72	80.4	- 2.4	+ 10.2)	
Group 1410—continued.							
1884. ^d June 18	No photograph.	(5	68	80.5	- 2.6	+ 23.6)	
19	No photograph.	(3	65	80.5	- 2.8	+ 37.0)	
20 ^h 58 ^m 9	0	79	0	62	80.6	- 3.0	+ 50.3
Means ...	...	...	8	75	80.04	- 2.34	...
Group 1411.							
A regular spot.							
June 11 ^h 43 ^m 4	0	42	0	86	75.6	+ 6.3	- 75.8
12 ^h 45 ^m 7	11	106	11	115	75.3	+ 6.3	- 62.5
13 ^h 12 ^m 3	21	126	19	112	76.1	+ 6.5	- 53.0
14 ^h 59 ^m 1	21	149	13	90	75.9	+ 6.4	- 33.7
15 ^h 43 ^m 5	29	170	16	93	76.2	+ 6.5	- 22.3
16 ^h 56 ^m 6	15	149	8	76	76.8	+ 6.6	- 6.7
Means ...	...	...	11	95	75.98	+ 6.43	...
Group 1412.							
A small spot. A second spot is seen near it on June 13.							
June 12 ^h 45 ^m 7	0	20	0	13	97.4	+ 4.9	- 40.4
13 ^h 12 ^m 3	5	16	3	9	99.2	+ 5.4	- 29.9
Means ...	...	...	2	11	98.30	+ 5.15	...
Group 1413.							
Two small spots.							
June 14 ^h 59 ^m 1	0	29	0	14	107.9	+ 7.5	- 1.7
Means ...	...	...	0	14	107.9	+ 7.5	...
Group 1414.							
A regular spot.							
June 14 ^h 59 ^m 1	0	9	0	23	30.7	- 8.0	- 78.9
15 ^h 43 ^m 5	0	55	0	76	30.6	- 7.9	- 67.9
16 ^h 56 ^m 6	21	149	18	126	30.7	- 7.9	- 52.8
17	No photograph.	(20	127	30.9	- 7.9	- 39.3)	
18	No photograph.	(22	128	31.1	- 7.9	- 25.8)	
19	No photograph.	(25	130	31.3	- 7.8	- 12.3)	
20 ^h 58 ^m 9	53	256	27	131	31.5	- 7.8	+ 1.2
21 ^h 47 ^m 5	43	235	22	123	31.9	- 8.6	+ 13.4
22 ^h 09 ^m 0	40	225	22	124	32.9	- 7.8	+ 22.5
23 ^h 43 ^m 3	32	193	21	128	32.3	- 8.6	+ 39.7
24 ^h 54 ^m 9	17	117	13	102	31.8	- 8.5	+ 54.0
25 ^h 59 ^m 8	5	88	7	119	31.5	- 9.4	+ 67.6
Means ...	...	...	16	111	31.43	- 8.18	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1415.							
Two small spots, <i>a</i> and <i>b</i> . <i>b</i> has disappeared by June 21, <i>a</i> by June 23. A small spot is, however, seen near its place on June 23.							
1884. _d							
June 20 ⁵ 89	3	99	2	50	33 ²	— 3 ⁵	+ 2 ⁹
21 ⁴ 75	0	12	0	6	35 ³	— 5 ⁴	+ 16 ⁸
22 ⁰ 90	0	12	0	7	36 ²	— 5 ¹	+ 25 ⁸
23 ⁴ 33	0	7	0	5	34 ²	— 5 ⁹	+ 41 ⁶
Means ...	...	...	1	17	34 ⁷ 3	— 4 ⁹ 8	...
Group 1416.							
A number of small spots in a long irregular stream. The following portion of the stream has disappeared by June 24.							
June 20 ⁵ 89	0	173	0	101	2 ⁰	+ 13 ¹	— 28 ³
21 ⁴ 75	0	94	0	51	0 ⁷	+ 12 ⁹	— 17 ⁸
22 ⁰ 90	11	128	6	66	359 ⁶	+ 12 ⁹	— 10 ⁸
23 ⁴ 33	6	118	3	60	4 ⁸	+ 12 ²	+ 12 ²
24 ⁵ 49	0	95	0	55	4 ⁵	+ 12 ⁷	+ 26 ⁷
25 ⁵ 98	11	214	7	145	6 ⁰	+ 10 ⁸	+ 42 ¹
26 ⁵ 00	0	148	0	129	6 ⁷	+ 10 ⁷	+ 54 ⁷
27 ⁴ 52	0	117	0	156	7 ³	+ 10 ⁸	+ 67 ⁹
Means ...	...	...	2	95	3 ⁹ 5	+ 12 ⁰ 1	...
Group 1417.							
Five small spots arranged in two compact clusters on June 21. Other small spots are seen near these, and are measured with them on June 22. The group has diminished in size by June 23.							
June 21 ⁴ 75	0	61	0	40	57 ⁶	— 10 ⁵	+ 39 ¹
22 ⁰ 90	0	179	0	135	57 ⁵	— 9 ⁴	+ 47 ¹
23 ⁴ 33	0	45	0	51	55 ⁸	— 10 ³	+ 63 ²
Means ...	...	...	0	75	56 ⁹ 7	— 10 ⁰ 7	...
Group 1418.							
A very small spot.							
June 22 ⁰ 90	0	9	0	6	333 ¹	— 15 ⁶	— 37 ³
23 ⁴ 33	0	6	0	3	332 ¹	— 14 ⁸	— 20 ⁵
Means ...	...	...	0	5	332 ⁶ 0	— 15 ² 0	...
Group 1419.							
A large regular spot, <i>a</i> , followed by another spot, <i>b</i> . <i>b</i> has broken up into a number of small, faint, and widely scattered spots by July 3. On July 4 these have become a compact cluster, and are measured together. The group is on the actual limb on July 8, and only <i>a</i> is distinguishable.							
June 26 ⁵ 00	0	144	0	273	238 ⁰	— 11 ⁰	— 74 ⁰
27 ⁴ 52	42	311	46	340	238 ⁰	— 11 ¹	— 61 ⁴
28 ⁴ 04	64	500	51	401	237 ²	— 11 ⁵	— 49 ⁶

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1419— <i>continued</i> .							
1884. _d							
June 29 ⁴ 30	85	646	54	413	237 ⁵	— 11 ⁵	— 35 ⁷
30 ⁴ 86	96	750	53	419	237 ⁶	— 11 ⁷	— 21 ⁶
July 1	No photograph.	(56	415	237 ⁹	— 12 ²	— 8 ⁸	
2	No photograph.	(60	412	238 ¹	— 12 ⁷	+ 4 ¹	
3 ³ 35	115	750	63	408	238 ⁴	— 13 ²	+ 16 ⁹
4 ² 43	160	1058	95	630	236 ⁷	— 14 ⁷	+ 27 ²
5 ³ 66	85	795	61	574	237 ⁸	— 13 ⁹	+ 43 ¹
6	No photograph.	(60	500	238 ⁹	— 13 ⁹	+ 57 ⁴	
7	No photograph.	(58	427	240 ¹	— 13 ⁹	+ 71 ⁸	
8 ³ 48	6	35	57	353	241 ³	— 13 ⁸	+ 86 ¹
Means ...	...	...	55	428	238 ² 7	— 12 ⁷ 0	...
Group 1420.							
A regular spot.							
June 26 ⁵ 00	0	75	0	124	239 ⁵	+ 10 ³	— 72 ⁵
27 ⁴ 52	6	108	6	109	239 ⁴	+ 10 ³	— 60 ⁰
28 ⁴ 04	9	80	6	59	239 ⁵	+ 9 ⁸	— 47 ³
29 ⁴ 30	0	87	0	53	239 ⁷	+ 9 ⁶	— 33 ⁵
30 ⁴ 86	35	102	19	54	239 ⁶	+ 9 ³	— 19 ⁶
July 1	No photograph.	(18	53	239 ⁶	+ 9 ⁰	— 7 ⁰	
2	No photograph.	(18	53	239 ⁷	+ 8 ⁸	+ 5 ⁶	
3 ³ 35	32	98	17	52	239 ⁷	+ 8 ⁵	+ 18 ²
4 ² 43	14	73	8	42	239 ⁶	+ 8 ⁵	+ 30 ¹
5 ³ 66	4	26	3	18	240 ²	+ 8 ⁸	+ 45 ⁵
Means ...	...	...	10	62	239 ⁶ 5	+ 9 ² 9	...
Group 1421.							
A regular spot on June 28. The spot increases in size on the succeeding days, and smaller spots appear following it, forming on July 3, 4, and 5 a long stream.							
June 28 ⁴ 04	0	50	0	59	222 ¹	+ 13 ³	— 64 ⁷
29 ⁴ 30	0	112	0	90	221 ⁹	+ 13 ³	— 51 ³
30 ⁴ 86	34	355	22	232	219 ⁸	+ 13 ¹	— 39 ⁴
July 1	No photograph.	(21	236	221 ⁰	+ 13 ⁰	— 25 ⁷	
2	No photograph.	(19	239	222 ¹	+ 13 ⁰	— 11 ⁹	
3 ³ 35	36	478	18	243	223 ³	+ 12 ⁹	+ 1 ⁸
4 ² 43	80	469	42	247	223 ⁸	+ 13 ¹	+ 14 ³
5 ³ 66	74	454	43	262	223 ⁵	+ 13 ⁸	+ 28 ⁸
6	No photograph.	(32	222	222 ⁹	+ 13 ⁹	+ 41 ⁴	
7	No photograph.	(22	182	222 ³	+ 13 ⁹	+ 53 ⁹	
8 ³ 48	10	116	11	142	221 ⁷	+ 14 ⁰	+ 66 ⁵
9 ¹ 68	8	57	14	118	220 ⁸	+ 14 ⁶	+ 76 ⁵
Means ...	...	...	20	189	222 ¹ 0	+ 13 ⁴ 9	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1422.							
A small spot on June 30. On July 3 the group consists of a large regular spot, α , followed by a stream of small spots.							
1884. _d June 30 ⁴⁸⁶	0	59	0	30	264.2	+10.0	+5.0
July 1	No photograph.	(13	113	265.8	+9.9	+19.1)	
2	No photograph.	(25	195	267.3	+9.7	+33.3)	
3 ³³⁵	52	377	38	278	268.9	+9.6	+47.4
4 ²⁴³	67	343	69	352	270.4	+10.0	+60.9
5 ³⁶⁶	15	160	31	347	271.8	+10.4	+77.1
Means ...	...	...	29	219	268.07	+9.93	...
Group 1423.							
A small spot.							
June 30 ⁴⁸⁶	0	27	0	15	236.0	+17.5	-23.2
Means ...	...	...	0	15	236.0	+17.5	...
Group 1424.							
A regular spot, α , followed by a stream of small spots. α has broken up into a number of small spots by July 8.							
July 3 ³³⁵	32	286	24	207	175.7	-4.9	-45.8
4 ²⁴³	62	303	38	184	176.1	-5.1	-33.4
5 ³⁶⁶	50	288	27	153	176.4	-5.0	-18.3
6	No photograph.	(21	120	176.6	-5.0	-4.9)	
7	No photograph.	(16	88	176.8	-4.9	+8.4)	
8 ³⁴⁸	18	101	10	55	177.0	-4.9	+21.8
9 ¹⁶⁸	9	67	5	39	175.5	-5.2	+31.2
Means ...	...	...	20	121	176.30	-5.00	...
Group 1425.							
A regular spot.							
July 3 ³³⁵	5	43	7	65	151.3	-7.4	-70.2
4 ²⁴³	22	100	22	98	151.2	-7.5	-58.3
5 ³⁶⁶	16	144	12	100	151.4	-7.4	-43.3
6	No photograph.	(14	92	151.4	-7.4	-30.1)	
7	No photograph.	(15	83	151.5	-7.4	-16.9)	
8 ³⁴⁸	34	147	17	75	151.5	-7.4	-3.7
9 ¹⁶⁸	39	158	20	81	151.5	-7.2	+7.2
10 ²⁰⁵	21	131	11	71	151.5	-7.1	+20.9
11 ¹⁶⁴	21	114	13	70	151.2	-7.0	+33.3
12 ²⁸⁰	18	114	13	86	150.4	-6.7	+47.3
Means ...	...	...	14	82	151.29	-7.25	...
Group 1426.							
A regular spot. A small spot is seen near it on July 5, and it has broken up by July 8 into a number of small spots.							
1884. _d July 3 ³³⁵	0	32	0	89	141.2	+8.3	-80.3
4 ²⁴³	12	111	16	151	140.9	+8.1	-68.6
5 ³⁶⁶	13	148	11	122	141.5	+7.9	-53.2
6	No photograph.	(11	103	141.4	+7.9	-40.1)	
7	No photograph.	(10	83	141.4	+7.8	-27.0)	
8 ³⁴⁸	19	124	10	64	141.3	+7.8	-13.9
9 ¹⁶⁸	8	44	4	22	141.2	+8.3	-3.1
Means ...	...	...	9	91	141.27	+8.01	...
Group 1427.							
A large spot of irregular outline, α , preceded by a stream of small spots. On July 19 only one large regular spot is seen.							
July 8 ³⁴⁸	12	97	18	149	83.6	+11.0	-71.6
9 ¹⁶⁸	45	266	45	267	83.9	+11.0	-60.4
10 ²⁰⁵	35	366	26	267	83.9	+10.9	-46.7
11 ¹⁶⁴	28	243	17	146	85.3	+11.4	-32.6
12 ²⁸⁰	70	345	36	183	85.1	+11.3	-18.0
13	No photograph.	(38	213	86.2	+11.4	-3.4)	
14	No photograph.	(41	242	87.4	+11.5	+11.2)	
15	No photograph.	(44	272	88.6	+11.6	+25.9)	
16	No photograph.	(46	301	89.7	+11.7	+40.5)	
17	No photograph.	(49	331	90.9	+11.8	+55.1)	
18	No photograph.	(52	360	92.0	+11.9	+69.8)	
19 ⁴⁰⁹	12	89	54	390	93.2	+12.0	+84.4
Means ...	...	...	39	260	87.48	+11.46	...
Group 1428.							
A very small spot.							
July 9 ¹⁶⁸	0	3	0	3	197.4	+15.9	+53.1
Means ...	...	...	0	3	197.4	+15.9	...
Group 1429.							
Two small spots measured together.							
July 9 ¹⁶⁸	7	22	5	17	193.3	+6.1	+49.0
Means ...	...	...	5	17	193.3	+6.1	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1430. A single spot.								Group 1436. A regular spot.							
1884. _a July 11 ^h 16 ^m 4 ^s 12 ^h 28 ^m 0 ^s	0	18	0	36	43 ^o 2'	— 8 ^o 1'	— 74 ^o 7'	1884. _a July 19 ^h 40 ^m 9 ^s 20 ^h 41 ^m 4 ^s 21 ^h 22 ^h 23 ^h 24 ^h 40 ^m 7 ^s 25 ^h 46 ^m 6 ^s 26 ^h 45 ^m 5 ^s 27 ^h 24 ^m 4 ^s	20 31 No photograph. No photograph. No photograph. 33 30 28 15	172 189 (19) (19) (18) 200 144 136 101	16 131 19 117 (19) 113 111 18 18 21 15	131 117 115 113 111 109 89 103 99	320 ^o 5' 321 ^o 1' 321 ^o 4' 321 ^o 7' 322 ^o 0' 322 ^o 3' 322 ^o 1' 323 ^o 1' 323 ^o 1'	— 6 ^o 6' — 6 ^o 7' — 6 ^o 7' — 6 ^o 7' — 6 ^o 6' — 6 ^o 6' — 7 ^o 5' — 6 ^o 7' — 6 ^o 9'	— 48 ^o 3' — 34 ^o 4' — 20 ^o 9' — 7 ^o 4' + 6 ^o 1' + 19 ^o 6' + 33 ^o 5' + 47 ^o 5' + 58 ^o 0'
Means ...	...	...	8	52	43 ^o 00'	— 8 ^o 15'	...	Means ...	...	...	18	110	321 ^o 92'	— 6 ^o 78'	...
Group 1431. Two small spots.								Group 1437. A regular spot on July 19 and 20. It has broken up by July 24, and forms two faint spots close together. On July 26 the group consists of three very small spots.							
July 12 ^h 28 ^m 0 ^s	3	16	3	20	170 ^o 2'	+ 9 ^o 7'	+ 67 ^o 1'	July 19 ^h 40 ^m 9 ^s 20 ^h 41 ^m 4 ^s 21 ^h 22 ^h 23 ^h 24 ^h 40 ^m 7 ^s 25 ^h 46 ^m 6 ^s 26 ^h 45 ^m 5 ^s	5 9 No photograph. No photograph. No photograph. 0 0 0	25 63 (7) (5) (3) 61 74 26	10 10 60 51 41 0 0 0	56 69 294 ^o 7' 295 ^o 5' 296 ^o 3' 297 ^o 1' 297 ^o 2' 296 ^o 8'	— 9 ^o 2' — 9 ^o 2' — 9 ^o 0' — 8 ^o 7' — 8 ^o 4' — 8 ^o 1' — 8 ^o 6' — 9 ^o 0'	— 76 ^o 1' — 61 ^o 6' — 47 ^o 6' — 33 ^o 6' — 19 ^o 6' — 5 ^o 6' + 8 ^o 6' + 21 ^o 2'	
Means ...	...	...	3	20	170 ^o 2'	+ 9 ^o 7'	...	Means ...	...	...	4	45	295 ^o 53'	— 8 ^o 78'	...
Group 1432. Fine small spots, three being close together are measured as one.								Group 1438. Three very small spots, of which the two following are measured as one. The group has greatly increased in size by July 24, and consists of two spots, <i>a</i> and <i>b</i> , of considerable size and irregular outline. The preceding spot, <i>a</i> , becomes more regular in shape, and moves forward in longitude on the succeeding days. Several small spots appear between <i>a</i> and <i>b</i> .							
July 12 ^h 28 ^m 0 ^s	31	90	22	63	145 ^o 3'	— 10 ^o 6'	+ 42 ^o 2'	July 20 ^h 41 ^m 4 ^s 21 ^h 22 ^h 23 ^h 24 ^h 40 ^m 7 ^s 25 ^h 46 ^m 6 ^s 26 ^h 45 ^m 5 ^s	0 78 95 78 62	18 441 466 596 556	0 40 53 51 47	13 67 121 175 229 259 384 429	310 ^o 4' 310 ^o 9' 311 ^o 3' 311 ^o 8' 312 ^o 2' 312 ^o 3' 313 ^o 4' 313 ^o 6'	— 3 ^o 5' — 3 ^o 6' — 3 ^o 6' — 3 ^o 7' — 3 ^o 8' — 4 ^o 3' — 3 ^o 7' — 3 ^o 8'	— 45 ^o 1' — 31 ^o 5' — 17 ^o 8' — 4 ^o 2' + 9 ^o 5' + 23 ^o 7' + 37 ^o 8' + 48 ^o 5'
Means ...	...	...	22	63	145 ^o 3'	— 10 ^o 6'	...	Means ...	...	...	4	45	295 ^o 53'	— 8 ^o 78'	...
Group 1433. A small spot.								Group 1439. A regular spot.							
July 12 ^h 28 ^m 0 ^s	0	4	0	6	32 ^o 7'	— 10 ^o 3'	— 70 ^o 4'	July 20 ^h 41 ^m 4 ^s 21 ^h 22 ^h 23 ^h 24 ^h 40 ^m 7 ^s 25 ^h 46 ^m 6 ^s 26 ^h 45 ^m 5 ^s 27 ^h 24 ^m 4 ^s	0 78 95 78 62	18 441 466 596 556	0 40 53 51 47	13 67 121 175 229 259 384 429	310 ^o 4' 310 ^o 9' 311 ^o 3' 311 ^o 8' 312 ^o 2' 312 ^o 3' 313 ^o 4' 313 ^o 6'	— 3 ^o 5' — 3 ^o 6' — 3 ^o 6' — 3 ^o 7' — 3 ^o 8' — 4 ^o 3' — 3 ^o 7' — 3 ^o 8'	— 45 ^o 1' — 31 ^o 5' — 17 ^o 8' — 4 ^o 2' + 9 ^o 5' + 23 ^o 7' + 37 ^o 8' + 48 ^o 5'
Means ...	...	...	0	6	32 ^o 7'	— 10 ^o 3'	...	Means ...	...	...	31	210	311 ^o 99'	— 3 ^o 75'	...
Group 1434. A very small spot on July 19. Two small spots on July 20.								Group 1435. A very small spot.							
July 19 ^h 40 ^m 9 ^s 20 ^h 41 ^m 4 ^s	1 0	3 7	1 0	4 17	74 ^o 2' 74 ^o 5'	+ 6 ^o 7' + 7 ^o 4'	+ 65 ^o 4' + 79 ^o 0'	July 20 ^h 41 ^m 4 ^s 21 ^h 22 ^h 23 ^h 24 ^h 40 ^m 7 ^s 25 ^h 46 ^m 6 ^s 26 ^h 45 ^m 5 ^s 27 ^h 24 ^m 4 ^s	0 78 95 78 62	18 441 466 596 556	0 40 53 51 47	13 67 121 175 229 259 384 429	310 ^o 4' 310 ^o 9' 311 ^o 3' 311 ^o 8' 312 ^o 2' 312 ^o 3' 313 ^o 4' 313 ^o 6'	— 3 ^o 5' — 3 ^o 6' — 3 ^o 6' — 3 ^o 7' — 3 ^o 8' — 4 ^o 3' — 3 ^o 7' — 3 ^o 8'	— 45 ^o 1' — 31 ^o 5' — 17 ^o 8' — 4 ^o 2' + 9 ^o 5' + 23 ^o 7' + 37 ^o 8' + 48 ^o 5'
Means ...	...	...	1	11	74 ^o 35'	+ 7 ^o 05'	...	Means ...	...	...	31	210	311 ^o 99'	— 3 ^o 75'	...
Group 1435. A very small spot.								Group 1439. A regular spot.							
July 19 ^h 40 ^m 9 ^s	1	7	1	5	47 ^o 3'	+ 9 ^o 8'	+ 38 ^o 5'	July 20 ^h 41 ^m 4 ^s	4	19	14	67	272 ^o 8'	+ 10 ^o 0'	— 82 ^o 7'
Means ...	...	...	1	5	47 ^o 3'	+ 9 ^o 8'	...	Means ...	...	...	14	67	272 ^o 8'	+ 10 ^o 0'	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1440.							
Several small spots arranged in three close clusters on July 26. On July 27 only two spots remain, and only one on July 31.							
1884. ^d July 26 ^h 455	16	78	10	50	241°3	−13°4	−34°3
27 ^h 244	12	30	8	17	240°2	−13°7	−24°9
28	No photograph.	(6	15	242°1	−12°8	−9°4	
29	No photograph.	(4	13	244°0	−11°9	+6°0	
30	No photograph.	(2	11	245°9	−10°9	+21°5	
31 ^h 357	0	18	0	12	247°8	−10°0	+37°0
Means ...	...	...	5	20	243°55	−12°12	...
Group 1441.							
Three very small spots on July 26. Other spots appear on July 27, and the group increases in size, consisting on July 31 of two large spots, <i>a</i> and <i>b</i> , and a few small spots between them. The small spots have disappeared by August 1, and <i>b</i> has broken up into two spots by August 3. Only <i>a</i> remains on August 5.							
July 26 ^h 455	3	20	3	20	215°2	+4°7	−60°4
27 ^h 244	1	29	1	23	212°2	+3°5	−52°9
28	No photograph.	(13	127	212°5	+3°6	−39°1	
29	No photograph.	(25	232	212°8	+3°7	−25°2	
30	No photograph.	(37	337	213°0	+3°8	−11°3	
31 ^h 357	99	877	49	441	213°3	+3°9	+2°5
Aug. 1 ^h 433	103	693	55	367	213°8	+3°8	+17°3
2 ^h 432	84	389	51	231	215°8	+3°1	+32°4
3 ^h 577	57	285	42	214	216°2	+3°5	+48°0
4 ^h 260	44	240	41	228	217°4	+2°7	+58°3
5 ^h 485	4	62	8	122	218°4	+2°6	+75°4
Means ...	...	...	30	213	214°60	+3°54	...
Group 1442.							
Two small spots measured together.							
July 27 ^h 244	6	26	5	23	213°0	−8°7	−52°1
Means ...	...	...	5	23	213°0	−8°7	...
Group 1443.							
Two small spots close together.							
July 31 ^h 357	8	36	7	31	261°9	−15°5	+51°1
Aug. 1 ^h 433	0	25	0	33	261°2	−15°2	+64°7
Means ...	...	...	4	32	261°55	−15°35	...
Group 1444.							
Several small spots on July 31. The group increases in size, and on August 1 consists of two large spots, <i>a</i> and <i>b</i> , with some small spots between them.							
1884. ^d July 31 ^h 357	36	289	20	155	222°6	−11°6	+11°8
Aug. 1 ^h 433	111	862	67	506	222°6	−11°1	+26°1
2 ^h 432	169	1183	114	812	223°5	−10°9	+40°1
3 ^h 577	169	749	150	671	221°7	−11°0	+53°5
4 ^h 260	74	618	92	773	223°5	−11°2	+64°4
5 ^h 485	4	76	8	158	216°4	−11°1	+73°4
Means ...	...	...	75	513	221°72	−11°15	...
Group 1445.							
A few small spots irregularly distributed on July 31. The group changes rapidly, increasing in size from day to day. On August 4 the group consists of two large spots with a few small spots between them.							
July 31 ^h 357	11	49	5	25	215°7	−5°0	+4°9
Aug. 1 ^h 433	23	303	12	167	217°0	−4°9	+20°5
2 ^h 432	38	467	23	289	218°1	−4°7	+34°7
3 ^h 577	63	369	49	291	217°6	−5°3	+49°4
4 ^h 260	48	629	47	612	217°2	−6°3	+58°1
5 ^h 485	14	264	28	545	218°3	−6°4	+75°3
Means ...	...	...	27	322	217°32	−5°43	...
Group 1446.							
Three spots, <i>a</i> , <i>b</i> , and <i>c</i> , in a straight line. <i>b</i> has disappeared by August 2, and <i>c</i> by August 7. A small spot is seen close to <i>a</i> on August 4. The photograph on August 5 is badly defined.							
Aug. 1 ^h 433	49	354	34	241	153°9	+10°4	−42°6
2 ^h 432	59	214	34	122	154°3	+10°3	−29°1
3 ^h 577	74	430	38	222	156°2	+7°7	−12°0
4 ^h 260	78	433	39	218	156°7	+8°8	−2°4
5 ^h 485	41	353	21	183	156°5	+9°1	+13°5
6 ^h 525	39	342	23	196	157°7	+8°5	+28°6
7 ^h 459	21	205	14	137	158°7	+7°5	+41°8
8 ^h 452	23	162	20	138	158°5	+7°4	+54°8
9 ^h 436	15	100	19	127	158°2	+7°0	+67°5
10 ^h 550	0	46	0	143	157°6	+7°3	+81°6
Means ...	...	...	24	173	156°83	+8°40	...
Group 1447.							
Four small spots measured in two clusters.							
Aug. 2 ^h 432	2	102	1	58	208°5	+17°4	+25°1
Means ...	...	...	1	58	208°5	+17°4	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1448.							
A somewhat faint spot, <i>a</i> . A small spot, <i>b</i> , appears near it on August 6. <i>a</i> has disappeared by August 7, and a third spot, <i>c</i> , appears. Two small spots are also seen in the neighbourhood on August 10, and two on August 11, but they cannot be certainly identified in either case with spots seen previously.							
1884. _d							
Aug. 3.577	0	8	0	15	94.2	+12.2	-74.0
4.260	0	35	0	42	92.8	+12.6	-66.3
5.485	4	65	3	51	92.8	+12.4	-50.2
6.525	2	49	1	31	91.9	+12.9	-37.2
7.459	0	18	0	10	91.8	+13.0	-25.1
8.452	0	21	0	11	92.1	+13.7	-11.6
9.436	0	33	0	16	92.1	+12.9	+1.4
10.550	5	19	3	10	92.0	+13.6	+16.0
11.503	0	4	0	3	90.9	+14.7	+27.5
Means ...	...	...	1	21	92.29	+13.11	...
Group 1449.							
Two small spots.							
Aug. 6.525	7	48	6	39	178.7	-8.4	+49.6
Means ...	...	...	6	39	178.7	-8.4	...
Group 1450.							
Two spots. Only one remains on August 7.							
Aug. 6.525	4	58	4	55	69.6	+12.2	-59.5
7.459	0	15	0	10	72.2	+11.7	-44.7
Means ...	...	...	2	33	70.90	+11.95	...
Group 1451.							
One spot on August 6 and 7. A second spot appears on August 8, and others on August 9. The areas of the spots diminish from day to day, and on August 10 the group is composed of a number of small faint spots irregularly distributed over a considerable area.							
Aug. 6.525	3	54	6	98	56.1	-6.3	-73.0
7.459	7	76	8	82	55.7	-6.5	-61.2
8.452	26	182	19	146	54.0	-7.2	-49.7
9.436	6	231	3	150	53.8	-7.1	-36.9
10.550	10	69	6	38	55.4	-7.4	-20.6
11.503	3	54	2	28	54.8	-6.4	-8.6
Means ...	...	...	7	90	54.97	-6.82	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1452.							
A small spot on August 7. The group increases in size on the succeeding days, and consists of a great number of small spots irregularly distributed over a large area. The group undergoes great and frequent changes.							
1884. _d							
Aug. 7.459	1	17	0	10	86.6	+5.5	-30.3
8.452	15	125	8	65	88.6	+5.8	-15.1
9.436	15	102	8	51	91.4	+6.4	+0.7
10.550	89	445	45	229	88.9	+6.3	+12.9
11.503	59	584	32	323	88.7	+7.6	+25.3
12.559	45	536	29	351	89.7	+7.1	+40.3
13.453	74	730	63	613	91.5	+6.7	+53.9
14.439	38	506	53	649	92.0	+6.6	+67.5
15.476	0	202	0	618	92.0	+6.3	+81.2
Means ...	...	...	26	323	89.93	+6.48	...
Group 1453.							
A regular spot.							
Aug. 8.452	5	45	11	98	27.6	-6.0	-76.1
9.436	24	70	28	82	27.2	-6.0	-63.5
10.550	23	153	18	119	27.4	-5.9	-48.6
11.503	14	191	9	121	27.7	-6.0	-35.7
12.559	33	203	18	111	27.9	-5.9	-21.5
13.453	33	245	17	126	28.1	-5.8	-9.5
14.439	26	215	13	110	28.5	-5.4	+4.0
15.476	37	199	20	107	28.5	-5.9	+17.7
16.437	19	135	12	81	28.8	-5.5	+30.6
17.545	13	126	10	92	28.3	-5.6	+44.8
18.594	14	79	14	78	28.0	-6.5	+58.4
19	No photograph.	(7	46	27.4	-6.1	+69.6)	
20.393	0	4	0	14	26.7	-5.6	+80.8
Means ...	...	...	14	91	27.85	-5.86	...
Group 1454.							
A number of small spots measured in three clusters. The clusters are not the same on August 15 as on August 14, or on August 17 as on August 16.							

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1455—continued.								Group 1459. A regular spot.							
1884. _a Aug. 16.437	18	202	11	125	323.5	— 3.2	— 34.7	1884. _a Aug. 20.393	8	83	7	70	258.3	— 19.5	— 47.6
17.545	42	222	23	120	323.1	— 2.8	— 20.4	21.378	25	110	17	75	259.6	— 20.5	— 33.2
18.594	37	232	19	119	323.1	— 2.8	— 6.5	22.432	17	112	10	67	260.2	— 20.5	— 18.8
19	No photograph.		(16	114	323.5	— 3.0	+ 5.8)	23.444	16	100	9	57	260.2	— 20.3	— 5.3
20.393	23	203	12	108	323.9	— 3.1	+ 18.0	24.543	12	56	7	32	259.5	— 20.5	+ 8.5
21.378	26	150	15	89	323.9	— 2.8	+ 31.1	25.221	18	43	11	26	259.6	— 20.1	+ 17.5
22.432	7	49	5	35	324.1	— 3.1	+ 45.1	26.413	11	30	8	20	259.7	— 19.9	+ 33.4
23.444	5	22	5	21	323.8	— 3.0	+ 58.3	27.157	4	24	3	19	260.0	— 20.0	+ 43.5
24.543	0	9	0	15	322.7	— 3.1	+ 71.7								
Means ...	...	...	13	100	323.43	— 3.17	...	Means ...	...	...	9	46	259.64	— 20.16	...
Group 1456. Two small spots, <i>a</i> and <i>b</i> . Another small spot is seen near <i>b</i> , and measured with it on August 18.								Group 1460. Two small spots, <i>a</i> and <i>b</i> . They have moved apart by August 21; <i>b</i> has disappeared by August 22. A third spot, <i>c</i> , appears on August 23.							
Aug. 17.545	4	26	6	37	272.8	+ 14.0	— 70.7	Aug. 20.393	0	23	0	19	256.6	— 15.7	— 49.3
18.594	2	61	2	55	273.3	+ 14.2	— 56.3	21.378	12	31	8	21	257.2	— 15.8	— 35.6
19	No photograph.		(1	33	272.6	+ 14.6	— 45.2)	22.432	9	28	5	16	258.4	— 15.7	— 20.6
20.393	0	18	0	11	271.8	+ 14.9	— 34.1	23.444	1	19	0	10	258.8	— 15.5	— 6.7
Means ...	...	...	2	34	272.63	+ 14.43	...	Means ...	...	...	3	17	257.75	— 15.68	...
Group 1457. A small spot.								Group 1461. A regular spot, <i>a</i> . Some small spots are seen near it, August 21–23.							
Aug. 20.393	12	33	7	18	305.3	— 12.4	— 0.6	Aug. 20.393	0	33	0	30	254.0	— 15.0	— 51.9
21.378	0	21	0	11	306.0	— 12.8	+ 13.2	21.378	28	101	20	72	252.3	— 15.5	— 40.5
Means ...	...	...	4	15	305.65	— 12.60	...	22.432	12	107	8	65	252.1	— 15.3	— 26.9
Group 1458. A number of small faint spots on August 20. They become much larger and darker on the succeeding days, and form a long straight stream of spots following each other very closely. The stream begins to break up after August 25. The individual spots undergo frequent changes.								23.444	6	30	3	17	252.0	— 16.0	— 13.5
Aug. 20.393	4	89	2	53	275.5	+ 2.2	— 30.4	Means ...	...	...	8	46	252.60	— 15.45	...
21.378	76	391	41	206	274.2	+ 3.3	— 18.6	Group 1462. A small spot.							
22.432	145	815	73	410	275.9	+ 4.2	— 3.1	Aug. 20.393	0	8	0	8	250.8	— 19.0	— 55.1
23.444	72	697	38	356	278.4	+ 4.5	+ 12.9	Means ...	...	...	0	8	250.8	— 19.0	...
24.543	47	781	27	433	276.7	+ 4.2	+ 25.7	Group 1463. A regular spot, <i>a</i> , with a larger spot, <i>b</i> , of irregular shape near it. <i>b</i> has broken up into a number of small spots by August 23.							
25.221	115	796	69	480	276.3	+ 4.4	+ 34.2	Aug. 20.393	6	62	21	220	225.1	— 7.6	— 80.8
26.413	71	565	60	458	278.4	+ 4.6	+ 52.1	21.378	24	166	34	235	224.8	— 7.9	— 68.0
27.157	46	472	52	530	280.4	+ 5.0	+ 63.9	22.432	24	239	21	212	225.0	— 7.5	— 54.0
Means ...	...	...	45	366	276.98	+ 4.05	...	23.444	19	214	13	147	224.8	— 7.7	— 40.7
								24.543	9	170	5	99	224.6	— 8.4	— 26.4

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1463—continued.							
1884. _d					°	°	°
Aug. 25 ^h 22 ^m 1	38	123	20	67	225°0	— 8°7	— 17°1
26 ^h 41 ^m 3	14	118	7	61	226°4	— 7°8	+ 0°1
27 ^h 15 ^m 7	0	30	0	16	225°0	— 8°6	+ 8°5
Means ...	...	...	15	132	225°09	— 8°03	...
Group 1464.							
Two small spots, <i>a</i> and <i>b</i> . Both move forward in longitude, but <i>a</i> the more rapidly.							
Aug. 22 ^h 43 ^m 2	3	35	2	25	242°7	— 19°9	— 36°3
23 ^h 44 ^m 4	4	14	2	8	243°8	— 20°3	— 21°7
Means ...	...	...	2	17	243°25	— 20°10	...
Group 1464*.							
A very small spot.							
Aug. 25 ^h 22 ^m 1	0	8	0	5	251°5	— 18°9	+ 9°4
Means ...	...	...	0	5	251°5	— 18°9	...
Group 1465.							
Several very small spots on August 24. The group has greatly increased in size by August 25, and then consists of a regular spot <i>a</i> , followed by two clusters of small spots. The group continues to increase in size, and on August 27 consists almost entirely of two very large spots, the small following spots having coalesced to make a very large spot, <i>b</i> . On August 29, <i>a</i> and <i>b</i> have coalesced to make one still larger spot.							
Aug. 24 ^h 54 ^m 3	0	29	0	16	222°1	+ 16°2	— 28°9
25 ^h 22 ^m 1	46	247	24	132	223°0	+ 15°5	— 19°1
26 ^h 41 ^m 3	81	659	41	334	224°4	+ 14°8	— 1°9
27 ^h 15 ^m 7	203	1147	104	586	224°3	+ 15°5	+ 7°8
28 ^h 44 ^m 7	166	1112	91	615	223°9	+ 15°2	+ 24°4
29 ^h 45 ^m 3	147	1334	93	842	223°2	+ 15°3	+ 37°0
Means ...	...	...	59	421	223°48	+ 15°42	...
Group 1466.							
A small spot. On August 27 and the succeeding days the group consists of several very small spots.							
Aug. 25 ^h 22 ^m 1	2	9	3	15	171°0	— 9°6	— 71°1
26 ^h 41 ^m 3	0	4	0	4	171°1	— 8°6	— 55°2
27 ^h 15 ^m 7	0	10	0	7	171°3	— 8°5	— 45°2
28 ^h 44 ^m 7	0	10	0	6	172°1	— 8°0	— 27°4
29 ^h 45 ^m 3	4	25	2	14	170°7	— 8°4	— 15°5
Means ...	...	...	1	9	171°24	— 8°62	...
Group 1467.							
A small spot. A second small spot is seen near it, and measured with it, on August 27 and the succeeding days.							
1884. _d					°	°	°
Aug. 26 ^h 41 ^m 3	0	7	0	9	163°1	— 18°1	— 63°2
27 ^h 15 ^m 7	9	30	8	26	165°5	— 17°1	— 51°0
28 ^h 44 ^m 7	6	37	4	24	166°7	— 17°1	— 32°8
29 ^h 45 ^m 3	0	15	0	9	167°1	— 17°3	— 19°1
Means ...	...	...	3	17	165°60	— 17°40	...
Group 1468.							
A small spot.							
Aug. 26 ^h 41 ^m 3	0	17	0	20	159°8	+ 7°4	— 66°5
27 ^h 15 ^m 7	1	15	1	14	159°9	+ 7°6	— 56°6
28 ^h 44 ^m 7	5	25	3	16	160°1	+ 7°7	— 39°4
29 ^h 45 ^m 3	0	14	0	8	160°1	+ 7°4	— 26°1
Means ...	...	...	1	15	159°98	+ 7°53	...
Group 1469.							
A regular spot, <i>a</i> . Small spots follow it August 27–29.							
Aug. 26 ^h 41 ^m 3	13	59	23	101	154°9	— 10°9	— 71°4
27 ^h 15 ^m 7	8	107	9	121	154°9	— 10°8	— 61°6
28 ^h 44 ^m 7	22	125	16	94	154°5	— 10°7	— 45°0
29 ^h 45 ^m 3	14	163	9	102	154°3	— 10°7	— 31°9
30	No photograph.		(7	80	154°7	— 10°7	— 18°4)
31	No photograph.		(5	57	155°1	— 10°8	— 4°8)
Sept. 1	No photograph.		(3	34	155°5	— 10°9	+ 8°8)
2 ^h 43 ^m 4	0	20	0	12	155°9	— 10°9	+ 22°3
3 ^h 39 ^m 8	0	18	0	11	155°9	— 10°7	+ 35°1
Means ...	...	...	8	68	155°08	— 10°79	...
Group 1470.							
Several small faint spots measured together on August 28. Only one remains on August 29.							
Aug. 28 ^h 44 ^m 7	0	27	0	15	184°0	— 8°6	— 15°5
29 ^h 45 ^m 3	0	18	0	10	184°0	— 8°9	— 2°2
Means ...	...	...	0	13	184°00	— 8°75	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1471. A number of small faint spots irregularly disposed.								Group 1476—continued.							
1884. ^d Aug. 29.453 30 31	o	66	o	83	123.9	-19.0	-62.3	1884. ^d Sept. 7.654 8.389 9.227 10.463 11.462	17 12 12 6 5	76 30 42 21 19	12 7 6 3 3	52 18 23 11 10	25.5 25.9 25.9 26.9 27.6	-11.1 -11.5 -11.3 -11.6 -11.6	-39.4 -29.1 -17.9 -0.6 +13.2
Sept. 1 2.434 3.398 4.150	No photograph. o o 7	(o 184 104 90	(o o o 4	99 105 58 50	122.3 121.8 121.1 121.7	-19.0 -19.0 -17.3 -17.1	-24.4 -11.8 +0.3 +10.8	Means ...	...	...	6 27	25.87	-11.39	...	
Group 1472. A small spot.								Group 1477. A few very small spots on September 6. On September 7 the group consists of two large regular spots, <i>a</i> and <i>b</i> , with several small spots between them.							
Sept. 3.398	o	6	o	10	188.4	-20.0	+67.6	Sept. 6.251 7.654 8.389 9.227	6 52 25 9	19 274 137 50	4 61 64 28	14 321 318 148	124.2 126.5 130.1 121.8	-14.0 -14.2 -14.5 -13.7	+41.0 +61.6 +75.1 +78.0
Means ...	...	...	o	10	188.4	-20.0	...	Means ...	...	...	39 200	125.65	-14.10	...	
Group 1473. A small spot.								Group 1478. Two very small spots.							
Sept. 4.150	1	11	2	12	50.5	-18.1	-60.4	Sept. 6.251	o	20	o	10	79.9	+18.6	-3.3
Means ...	...	...	2	12	50.5	-18.1	...	Means ...	...	...	o	10	79.9	+18.6	...
Group 1474. Two small spots.								Group 1479. Several small faint spots close together. The group undergoes several changes.							
Sept. 5.426 6.251	o 4	33 101	o 2	17 53	98.2 97.6	+17.8 +18.1	+4.1 +14.4	Sept. 6.251 7.654 8.389 9.227 10.463 11.462	1 o o o o o	24 16 16 2 43 25	2 o o o o o	29 12 10 1 24 14	20.4 20.7 22.2 21.2 21.8 22.1	-14.3 -14.9 -14.0 -15.0 -14.3 -14.6	-62.8 -44.2 -32.8 -22.6 -5.7 +7.7
Means ...	...	...	1	35	97.90	+17.95	...	Means ...	...	...	o	15	21.40	-14.52	...
Group 1475. A small spot. The small spot seen on September 6 is apparently not identical with that seen on September 5, though in its immediate neighbourhood.								Group 1480. A few small spots on September 6. Other spots appear on September 7 and 8, and on September 9 the group is a compact cluster of spots. The group continues to increase in size; the first and last spots increasing with the greatest rapidity, so that on September 11 the group consists of two large spots, <i>a</i> and <i>b</i> , with a stream of small spots between them. The intermediate spots have all disappeared by September 16, but some small spots are seen on that day following <i>b</i> .							
Sept. 5.426 6.251	o o	6 4	o o	7 4	33.5 31.6	-9.7 -7.0	-60.6 -51.6	Sept. 6.251 7.654 8.389 9.227	o o o 25	10 47 28 150	o o o 15	15 38 19 88	12.4 12.6 12.2 12.2	+14.8 +14.7 +14.2 +14.1	-70.8 -52.3 -42.8 -31.6
Means ...	...	...	o	6	32.55	-8.35	...	Sept. 6.251 7.654 8.389 9.227	o o o 25	10 47 28 150	o o o 15	15 38 19 88	12.4 12.6 12.2 12.2	+14.8 +14.7 +14.2 +14.1	-70.8 -52.3 -42.8 -31.6
Group 1476. A small regular spot.								Group 1480. A few small spots on September 6. Other spots appear on September 7 and 8, and on September 9 the group is a compact cluster of spots. The group continues to increase in size; the first and last spots increasing with the greatest rapidity, so that on September 11 the group consists of two large spots, <i>a</i> and <i>b</i> , with a stream of small spots between them. The intermediate spots have all disappeared by September 16, but some small spots are seen on that day following <i>b</i> .							
Sept. 5.426 6.251	o 9	29 29	o 10	45 30	24.7 24.6	-11.0 -11.6	-69.4 -58.6	Sept. 6.251 7.654 8.389 9.227	o o o 25	10 47 28 150	o o o 15	15 38 19 88	12.4 12.6 12.2 12.2	+14.8 +14.7 +14.2 +14.1	-70.8 -52.3 -42.8 -31.6

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1480—continued.							
1884. <i>a</i>					°	°	°
Sept. 10 ^h 46 ^m 3	57	653	30	338	13 ^h 7	+14 ^h 0	-13 ^h 8
11 ^h 46 ^m 2	162	1038	81	525	16 ^h 0	+14 ^h 1	+1 ^h 6
12 ^h 41 ^m 1	306	1528	161	801	16 ^h 8	+14 ^h 0	+14 ^h 9
13 ^h 41 ^m 3	333	1796	192	1031	17 ^h 3	+13 ^h 4	+28 ^h 7
14	No photograph.	(265	1388	19 ^h 1	+13 ^h 7	+43 ^h 9)	
15 ^h 44 ^m 1	390	2036	337	1744	20 ^h 9	+14 ^h 0	+59 ^h 1
16 ^h 45 ^m 8	167	1304	218	1630	15 ^h 6	+13 ^h 9	+67 ^h 2
17 ^h 43 ^m 5	67	520	127	1356	15 ^h 8	+13 ^h 3	+80 ^h 3
Means ...	...	...	119	748	15 ^h 38	+14 ^h 02	...
Group 1481.							
A regular spot, <i>a</i> , followed by two or three smaller spots. The following spots have disappeared by September 11; a small spot is seen preceding <i>a</i> on that day.							
Sept. 7 ^h 65 ^m 4	56	145	43	114	23 ^h 3	-23 ^h 0	-41 ^h 6
8 ^h 38 ^m 9	26	268	18	188	25 ^h 0	-23 ^h 3	-30 ^h 0
9 ^h 22 ^m 7	35	253	22	158	23 ^h 2	-23 ^h 0	-20 ^h 6
10 ^h 46 ^m 3	27	243	16	142	24 ^h 4	-23 ^h 2	-3 ^h 1
11 ^h 46 ^m 2	27	167	16	99	24 ^h 9	-25 ^h 2	+10 ^h 5
12 ^h 41 ^m 1	20	175	13	111	24 ^h 5	-23 ^h 5	+22 ^h 6
13 ^h 41 ^m 3	16	115	12	83	23 ^h 9	-23 ^h 6	+35 ^h 3
14	No photograph.	(10	59	23 ^h 4	-23 ^h 2	+48 ^h 2)	
15 ^h 44 ^m 1	6	27	8	34	22 ^h 9	-22 ^h 8	+61 ^h 1
Means ...	...	...	18	110	23 ^h 94	-23 ^h 42	...
Group 1482.							
Two large regular spots, <i>a</i> and <i>b</i> ; small spots are occasionally seen between them. The group begins to diminish in size after passing the central meridian on September 13, <i>b</i> diminishing the more rapidly and disappearing entirely before September 19.							
Sept. 8 ^h 38 ^m 9	16	153	35	386	336 ^h 0	+5 ^h 9	-79 ^h 0
9 ^h 22 ^m 7	27	336	35	441	335 ^h 7	+6 ^h 1	-68 ^h 1
10 ^h 46 ^m 3	86	499	69	401	335 ^h 7	+6 ^h 1	-51 ^h 8
11 ^h 46 ^m 2	83	577	52	367	336 ^h 2	+5 ^h 9	-38 ^h 2
12 ^h 41 ^m 1	123	667	70	372	336 ^h 4	+5 ^h 9	-25 ^h 5
13 ^h 41 ^m 3	114	674	59	347	336 ^h 3	+5 ^h 9	-12 ^h 3
14	No photograph.	(54	319	336 ^h 7	+5 ^h 9	+1 ^h 5)	
15 ^h 44 ^m 1	92	562	48	291	337 ^h 1	+5 ^h 9	+15 ^h 3
16 ^h 45 ^m 8	90	445	52	256	338 ^h 0	+5 ^h 6	+29 ^h 6
17 ^h 43 ^m 5	78	315	53	215	338 ^h 6	+5 ^h 3	+43 ^h 1
18 ^h 43 ^m 1	18	130	17	118	339 ^h 3	+5 ^h 0	+56 ^h 9
19 ^h 55 ^m 5	0	73	0	121	340 ^h 2	+3 ^h 9	+72 ^h 6
20 ^h 43 ^m 6	1	24	3	107	339 ^h 9	+4 ^h 2	+84 ^h 0
Means ...	...	...	42	288	337 ^h 39	+5 ^h 51	...
Group 1483.							
A small regular spot, <i>a</i> , followed by a close cluster of smaller spots, which have coalesced by September 12 to form one spot, <i>b</i> .							
1884. <i>a</i>					°	°	°
Sept. 9 ^h 22 ^m 7	24	228	15	138	9 ^h 4	+9 ^h 1	-34 ^h 4
10 ^h 46 ^m 3	21	175	11	92	9 ^h 7	+8 ^h 9	-17 ^h 8
11 ^h 46 ^m 2	11	101	6	52	9 ^h 2	+8 ^h 7	-5 ^h 2
12 ^h 41 ^m 1	7	30	3	15	10 ^h 3	+8 ^h 7	+8 ^h 4
13 ^h 41 ^m 3	3	28	1	16	11 ^h 2	+9 ^h 0	+22 ^h 6
Means ...	...	...	7	63	9 ^h 96	+8 ^h 88	...
Group 1484.							
A large regular spot, which has divided into two spots, <i>a</i> and <i>b</i> , by September 15; <i>a</i> has disappeared by September 18.							
Sept. 12 ^h 41 ^m 1	15	103	29	197	286 ^h 6	+5 ^h 5	-75 ^h 3
13 ^h 41 ^m 3	31	191	33	204	286 ^h 2	+5 ^h 5	-62 ^h 4
14	No photograph.	(33	186	286 ^h 4	+5 ^h 4	-48 ^h 9)	
15 ^h 44 ^m 1	53	273	32	167	286 ^h 5	+5 ^h 3	-35 ^h 3
16 ^h 45 ^m 8	62	274	34	148	286 ^h 8	+4 ^h 8	-21 ^h 6
17 ^h 43 ^m 5	36	282	18	143	287 ^h 3	+4 ^h 6	-8 ^h 2
18 ^h 43 ^m 1	51	249	26	125	287 ^h 8	+4 ^h 7	+5 ^h 4
19 ^h 55 ^m 5	53	209	29	113	288 ^h 0	+4 ^h 2	+20 ^h 4
20 ^h 43 ^m 6	33	182	20	107	288 ^h 2	+3 ^h 9	+32 ^h 3
21 ^h 44 ^m 3	15	121	11	86	288 ^h 4	+3 ^h 8	+45 ^h 7
22 ^h 45 ^m 4	12	108	12	103	287 ^h 9	+3 ^h 6	+58 ^h 7
23 ^h 44 ^m 5	7	75	10	115	287 ^h 1	+3 ^h 3	+70 ^h 9
Means ...	...	...	24	141	287 ^h 27	+4 ^h 55	...
Group 1485.							
A few small spots on September 15. The group rapidly increases in size, and forms on September 17 and the succeeding days a long irregular stream of spots. The group diminishes in size after passing the central meridian on September 19.							
Sept. 15 ^h 44 ^m 1	12	39	14	44	257 ^h 1	+13 ^h 7	-64 ^h 7
16 ^h 45 ^m 8	13	240	11	192	256 ^h 6	+13 ^h 8	-51 ^h 8
17 ^h 43 ^m 5	183	813	118	525	256 ^h 1	+13 ^h 9	-39 ^h 4
18 ^h 43 ^m 1	185	920	103	516	256 ^h 2	+14 ^h 2	-26 ^h 2
19 ^h 55 ^m 5	114	946	59	489	256 ^h 9	+14 ^h 1	-10 ^h 7
20 ^h 43 ^m 6	141	891	71	451	257 ^h 7	+14 ^h 0	+1 ^h 8
21 ^h 44 ^m 3	84	563	45	296	258 ^h 1	+13 ^h 9	+15 ^h 4
22 ^h 45 ^m 4	102	539	59	312	258 ^h 8	+13 ^h 9	+29 ^h 6
23 ^h 44 ^m 5	50	388	35	272	260 ^h 7	+12 ^h 8	+44 ^h 5
24 ^h 56 ^m 5	23	120	25	121	262 ^h 3	+11 ^h 8	+60 ^h 9
25 ^h 45 ^m 9	0	63	0	117	264 ^h 9	+10 ^h 6	+75 ^h 3
Means ...	...	...	49	303	258 ^h 67	+13 ^h 34	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1486.							
Two regular spots, <i>a</i> and <i>b</i> . Some small spots are seen near them on September 21, 23, 24, and 25.							
1884. <i>a</i>					°	°	°
Sept. 16 ⁴⁵ 8	9	121	24	348	226.8	+16.2	-81.6
17 ⁴³ 5	65	248	92	346	225.2	+16.0	-70.3
18 ⁴³ 1	75	354	70	325	224.8	+15.7	-57.6
19 ⁵⁵ 5	115	440	78	300	225.1	+15.8	-42.5
20 ⁴³ 6	97	622	57	366	224.9	+15.4	-31.0
21 ⁴⁴ 3	115	702	61	372	224.6	+15.7	-18.1
22 ⁴⁵ 4	112	695	57	354	224.8	+15.6	-4.4
23 ⁴⁴ 5	107	680	55	351	224.7	+15.6	+8.5
24 ⁵⁶ 5	88	583	49	322	225.0	+15.7	+23.6
25 ⁴⁵ 9	79	578	49	354	224.2	+15.7	+34.6
26	No photograph.	(49	302	224.9	+15.7	+47.0)	
27 ²² 9	51	263	49	250	225.6	+15.7	+59.3
Means ...	...	...	58	333	225.05	+15.73	...
Group 1487.							
A few small spots. Three are seen on September 17, two on September 18, none on September 19, three on September 20, two on September 21, and two, measured as one, on September 22.							
Sept. 17 ⁴³ 5	0	65	0	35	274.2	+15.5	-21.3
18 ⁴³ 1	0	25	0	13	274.6	+16.1	-7.8
19 ⁵⁵ 5	0	0	0	0	...	...	...
20 ⁴³ 6	0	63	0	33	275.9	+14.1	+20.0
21 ⁴⁴ 3	4	43	2	26	278.3	+14.1	+35.6
22 ⁴⁵ 4	0	44	0	33	278.3	+14.4	+49.1
Means ...	...	...	0	23	276.26	+14.84	...
Group 1488.							
A very close pair of small spots on September 18; three small spots on September 19; one spot of greater area on September 20.							
Sept. 18 ⁴³ 1	3	20	3	18	335.9	-11.6	+53.5
19 ⁵⁵ 5	0	14	0	22	336.2	-11.9	+68.6
20 ⁴³ 6	3	27	8	86	335.2	-10.9	+79.3
Means ...	...	...	4	42	335.77	-11.47	...
Group 1489.							
Two spots, <i>a</i> and <i>b</i> , on September 18. The spots move away from each other on the succeeding days, and other spots appear between or near them. The group on September 20 and the succeeding days consists of a number of small spots irregularly distributed over an extensive area. <i>a</i> and <i>b</i> continue to be the largest members of the group; the other spots are measured in clusters.							
Sept. 18 ⁴³ 1	15	66	11	45	238.1	+5.7	-44.3
19 ⁵⁵ 5	11	149	6	86	237.8	+6.7	-29.8
20 ⁴³ 6	16	98	9	52	238.5	+6.9	-17.4
21 ⁴⁴ 3	28	224	15	112	239.2	+6.1	-3.5
Group 1489—continued.							
1884. <i>a</i>					°	°	°
Sept. 22 ⁴⁵ 4	27	236	14	121	239.0	+6.5	+9.8
23 ⁴⁴ 5	22	209	11	116	239.8	+5.6	+23.6
24 ⁵⁶ 5	23	90	13	57	239.1	+6.4	+37.7
25 ⁴⁵ 9	0	54	0	40	236.7	+8.4	+47.1
26	No photograph.	(0	27	237.6	+8.9	+59.6)	
27 ²² 9	0	9	0	14	238.4	+9.3	+72.1
Means ...	...	...	8	67	238.42	+7.05	...
Group 1490.							
Two small spots measured together on September 19. Only one spot remains on September 20. This spot has developed into a close cluster of three small spots, measured as one, by September 21.							
Sept. 19 ⁵⁵ 5	0	17	0	11	227.4	+19.0	-40.2
20 ⁴³ 6	7	17	4	10	229.8	+17.4	-26.1
21 ⁴⁴ 3	0	72	0	38	229.2	+17.6	-13.5
Means ...	...	...	1	20	228.80	+18.00	...
Group 1491.							
Two small spots on September 21. The group rapidly increases in size, and consists on September 22 and the succeeding days of a regular spot, <i>a</i> , with a number of small spots following it in an irregular stream. On September 30, <i>a</i> is very near the Sun's limb, and is not clearly separated from the other portions of the group.							
Sept. 21 ⁴⁴ 3	2	47	1	34	197.6	-7.2	-45.1
22 ⁴⁵ 4	47	286	28	170	199.0	-7.3	-30.2
23 ⁴⁴ 5	81	394	44	215	199.6	-7.2	-16.6
24 ⁵⁶ 5	68	715	35	368	200.5	-6.8	-0.9
25 ⁴⁵ 9	171	1081	91	573	201.8	-6.9	+12.2
26	No photograph.	(80	533	202.3	-6.9	+24.4)	
27 ²² 9	106	767	68	493	202.8	-6.9	+36.5
28	No photograph.	(51	563	202.1	-7.4	+50.2)	
29	No photograph.	(35	633	201.4	-7.9	+63.9)	
30 ⁵⁰ 1	8	295	18	703	200.7	-8.4	+77.6
Means ...	...	...	45	429	200.78	-7.29	...
Group 1492.							
A small spot.							
Sept. 21 ⁴⁴ 3	0	18	0	15	196.5	-16.7	-46.2
22 ⁴⁵ 4	0	43	0	28	197.0	-16.5	-32.2
23 ⁴⁴ 5	24	51	14	29	198.2	-16.0	-18.0
24 ⁵⁶ 5	5	19	3	11	199.2	-16.5	-2.2
25 ⁴⁵ 9	3	14	2	8	199.8	-16.1	+10.2
Means ...	...	...	4	18	198.14	-16.36	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1493.							
A small spot. A second spot is seen near it on September 23.							
1884. ^a Sept. 21 ^h 44 ^m 3	0	12	0	12	183 ^o 7	— 3 ^o 5	— 59 ^o 0
22 ^h 45 ^m 4	0	30	0	23	181 ^o 6	— 3 ^o 2	— 47 ^o 6
23 ^h 44 ^m 5	5	23	3	14	182 ^o 9	— 3 ^o 5	— 33 ^o 3
24 ^h 56 ^m 5	0	15	0	8	181 ^o 8	— 3 ^o 5	— 19 ^o 6
Means ...	...	...	1	14	182 ^o 50	— 3 ^o 43	...
Group 1494.							
Two small spots measured together.							
Sept. 23 ^h 44 ^m 5	0	38	0	19	205 ^o 3	+ 5 ^o 6	— 10 ^o 9
Means ...	...	...	0	19	205 ^o 3	+ 5 ^o 6	...
Group 1495.							
A large regular spot.							
Sept. 23 ^h 44 ^m 5	13	73	62	354	134 ^o 0	— 12 ^o 3	— 82 ^o 2
24 ^h 56 ^m 5	24	162	35	232	134 ^o 2	— 12 ^o 1	— 67 ^o 2
25 ^h 45 ^m 9	51	286	50	276	133 ^o 8	— 12 ^o 6	— 55 ^o 8
26	No photograph.	(45	252	133 ^o 8	— 12 ^o 8	— 44 ^o 2	
27 ^h 22 ^m 9	62	361	39	228	133 ^o 8	— 13 ^o 0	— 32 ^o 5
28	No photograph.	(41	224	133 ^o 8	— 13 ^o 2	— 18 ^o 1	
29	No photograph.	(43	220	133 ^o 8	— 13 ^o 5	— 3 ^o 7	
30 ^h 50 ^m 1	83	398	45	216	133 ^o 8	— 13 ^o 7	+ 10 ^o 7
Oct. 1	No photograph.	(46	217	133 ^o 9	— 13 ^o 9	+ 23 ^o 4	
2 ^h 41 ^m 2	68	326	46	218	133 ^o 9	— 14 ^o 1	+ 36 ^o 0
3 ^h 45 ^m 9	54	282	43	224	133 ^o 9	— 14 ^o 4	+ 49 ^o 9
4 ^h 43 ^m 5	26	202	32	246	134 ^o 1	— 14 ^o 7	+ 62 ^o 9
5 ^h 14 ^m 1	20	132	36	246	133 ^o 9	— 14 ^o 8	+ 72 ^o 0
Means ...	...	...	43	243	133 ^o 90	— 13 ^o 47	...
Group 1496.							
Two very small spots.							
Sept. 25 ^h 45 ^m 9	0	22	0	12	163 ^o 3	+ 6 ^o 4	— 26 ^o 3
Means ...	...	...	0	12	163 ^o 3	+ 6 ^o 4	...
Group 1497.							
Several small spots irregularly distributed on September 27. A large regular spot, α , has formed in advance of the group by September 30, and the small spots form a long straight stream following it. The small spots have all disappeared by October 4.							
Sept. 27 ^h 22 ^m 9	40	238	31	186	119 ^o 9	— 13 ^o 9	— 46 ^o 4
28	No photograph.	(45	241	122 ^o 0	— 13 ^o 7	— 29 ^o 9	
Group 1497—continued.							
1884. ^a Sept. 29	No photograph.	(60	295	124 ^o 1	— 13 ^o 6	— 13 ^o 4	
30 ^h 50 ^m 1	136	652	74	350	126 ^o 1	— 13 ^o 4	+ 3 ^o 0
Oct. 1	No photograph.	(64	357	126 ^o 3	— 13 ^o 7	+ 15 ^o 8	
2 ^h 41 ^m 2	86	590	54	363	126 ^o 4	— 13 ^o 9	+ 28 ^o 5
3 ^h 45 ^m 9	65	371	47	264	129 ^o 0	— 13 ^o 5	+ 45 ^o 0
4 ^h 43 ^m 5	67	244	70	253	129 ^o 5	— 13 ^o 4	+ 58 ^o 3
5 ^h 14 ^m 1	28	163	41	236	129 ^o 1	— 13 ^o 5	+ 67 ^o 2
Means ...	...	...	54	283	125 ^o 82	— 13 ^o 62	...
Group 1498.							
A small spot on September 27. A number of other small spots are seen on September 30. The group increases yet further in size, and on October 2 and succeeding days consists of a large regular spot, α , followed by a straggling stream of small spots.							
Sept. 27 ^h 22 ^m 9	5	16	9	28	95 ^o 7	— 14 ^o 1	— 70 ^o 6
28	No photograph.	(13	59	94 ^o 9	— 14 ^o 3	— 57 ^o 0	
29	No photograph.	(16	91	94 ^o 2	— 14 ^o 4	— 43 ^o 2	
30 ^h 50 ^m 1	32	195	20	122	93 ^o 4	— 14 ^o 6	— 29 ^o 7
Oct. 1	No photograph.	(24	170	95 ^o 5	— 14 ^o 1	— 15 ^o 0	
2 ^h 41 ^m 2	53	381	28	217	97 ^o 5	— 13 ^o 6	— 0 ^o 4
3 ^h 45 ^m 9	86	510	45	265	100 ^o 7	— 12 ^o 6	+ 16 ^o 7
4 ^h 43 ^m 5	42	330	26	205	102 ^o 2	— 12 ^o 6	+ 31 ^o 0
5 ^h 14 ^m 1	69	344	48	240	101 ^o 5	— 13 ^o 1	+ 39 ^o 6
6 ^h 27 ^m 4	43	210	42	202	102 ^o 4	— 13 ^o 4	+ 55 ^o 5
7 ^h 52 ^m 2	10	109	19	205	102 ^o 7	— 13 ^o 8	+ 72 ^o 3
Means ...	...	...	26	164	98 ^o 25	— 13 ^o 69	...
Group 1499.							
A small spot on September 30 and October 2. On October 3 and the succeeding days the group consists of a few small spots irregularly scattered over a wide area.							
Sept. 30 ^h 50 ^m 1	0	28	0	25	67 ^o 5	+ 9 ^o 1	— 55 ^o 6
Oct. 1	No photograph.	(0	15	67 ^o 2	+ 9 ^o 6	— 43 ^o 4	
2 ^h 41 ^m 2	0	9	0	5	66 ^o 8	+ 10 ^o 0	— 31 ^o 1
3 ^h 45 ^m 9	34	120	17	59	67 ^o 5	+ 9 ^o 6	— 16 ^o 5
4 ^h 43 ^m 5	12	83	6	42	68 ^o 3	+ 9 ^o 6	— 2 ^o 9
5 ^h 14 ^m 1	8	37	4	19	71 ^o 1	+ 8 ^o 2	+ 9 ^o 2
Means ...	...	...	5	28	68 ^o 07	+ 9 ^o 35	...
Group 1500.							
Several small spots following one another.							
Oct. 2 ^h 41 ^m 2	8	79	5	46	72 ^o 1	— 7 ^o 2	— 25 ^o 8
3 ^h 45 ^m 9	2	110	1	54	72 ^o 1	— 7 ^o 8	— 11 ^o 9
Means ...	...	...	3	50	72 ^o 10	— 7 ^o 50	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 1501.							
A large regular spot, <i>a</i> , followed by another large spot of irregular outline, <i>b</i> . Some small spots are seen between <i>a</i> and <i>b</i> . <i>b</i> has broken up by October 6 into a number of spots, which undergo frequent changes during the succeeding days.							
1884. _d					°	°	°
Oct. 2.412	50	217	107	464	20.3	+14.4	-77.6
3.459	152	790	192	995	15.0	+14.3	-69.0
4.435	176	1080	151	958	15.1	+14.4	-56.1
5.141	210	1328	155	973	15.4	+14.5	-46.5
6.274	223	1414	133	846	15.3	+14.5	-31.6
7.522	297	1699	156	896	15.7	+14.3	-14.7
8.461	351	1811	179	919	15.7	+14.1	-2.4
9.481	191	1896	99	980	16.0	+14.4	+11.4
10.293	195	1532	137	830	15.6	+13.8	+21.7
11.229	188	1473	112	882	14.7	+13.8	+33.2
12.186	125	1075	92	775	15.2	+13.5	+46.2
13.442	53	641	56	667	14.1	+14.1	+61.8
14.458	0	282	0	526	14.2	+14.3	+75.3
15.192	0	73	0	207	10.2	+14.1	+80.9
Means ...	...	...	112	780	15.18	+14.18	..
Group 1502.							
A small spot, <i>a</i> . By October 5, <i>a</i> has become a cluster of small spots, and a second cluster, <i>b</i> , has appeared a little in advance of it. <i>a</i> has disappeared by October 7.							
Oct. 4.435	3	23	2	16	31.7	-11.3	-39.5
5.141	9	132	6	81	31.3	-11.3	-30.6
6.274	38	159	21	88	31.1	-11.3	-15.8
7.522	18	79	10	42	33.6	-11.7	+3.2
8.461	0	16	0	9	34.4	-12.3	+16.3
Means ...	...	...	8	47	32.42	-11.58	...
Group 1503.							
A small spot.							
Oct. 5.141	2	9	3	15	349.8	-9.1	-72.1
6.274	3	10	3	10	350.3	-9.3	-56.6
7.522	8	31	5	21	351.4	-9.5	-39.0
8.461	1	9	1	5	351.5	-9.8	-26.6
Means ...	...	...	3	13	350.75	-9.43	...
Group 1504.							
Two small spots.							
Oct. 7.522	4	40	3	30	67.9	-22.9	+37.5
8.461	7	45	7	43	68.5	-24.4	+50.4
Means ...	...	...	5	37	68.20	-23.65	...
Group 1505.							
A small regular spot, <i>a</i> . A second is seen on October 8.							
1884. _d					°	°	°
Oct. 7.522	0	21	0	18	341.8	-16.3	-48.6
8.461	22	98	15	66	341.9	-16.9	-36.2
9.481	4	26	2	15	341.2	-17.5	-23.4
Means ...	...	...	6	33	341.63	-16.90	...
Group 1506.							
Several small spots irregularly arranged.							
Oct. 10.293	12	47	16	66	283.5	+14.2	-70.4
11.229	14	65	12	59	284.1	+14.2	-57.4
12.186	16	51	11	35	285.5	+13.7	-43.5
13.442	18	71	10	40	285.2	+14.1	-27.1
14.458	10	81	5	42	285.3	+13.9	-13.6
15.192	12	59	6	30	285.9	+13.1	-3.4
Means ...	...	...	10	45	284.92	+13.87	...
Group 1507.							
Several very small spots in a compact cluster.							
Oct. 15.192	0	11	0	6	311.3	-1.7	+22.0
Means ...	...	...	0	6	311.3	-1.7	...
Group 1508.							
A spot of irregular outline. It has broken up into a number of small spots by October 18.							
Oct. 15.192	13	106	24	201	215.7	-8.4	-73.6
16.173	19	184	20	196	215.9	-8.4	-60.5
17.182	7	151	6	118	215.5	-8.8	-47.6
18.398	41	223	25	137	215.5	-8.8	-31.5
19.506	14	167	7	91	216.5	-9.5	-15.9
20.241	29	132	16	73	216.1	-9.0	-6.6
21.186	22	91	11	47	216.6	-9.3	+6.4
22.521	5	24	3	14	217.9	-8.6	+25.2
Means ...	...	...	14	110	216.21	-8.85	...
Group 1509.							
A spot of irregular outline. It has broken up into a number of small spots by October 18.							
Oct. 15.192	15	56	62	229	207.3	-8.2	-82.0
16.173	8	95	13	142	207.2	-8.8	-69.2
17.182	6	110	6	104	207.3	-9.1	-55.8
18.398	15	170	10	117	206.6	-9.1	-40.4

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 1509—continued.							
1884. ^a Oct. 19.506	8	146	4	83	208.3	— 9.9	— 24.1
20.241	19	106	10	57	208.1	— 9.6	— 14.6
21.186	15	133	8	70	208.1	— 11.5	— 2.1
22.521	0	22	0	12	209.3	— 11.7	+ 16.6
Means ...	...	...	14	102	207.78	— 9.74	...
Group 1510. Three small spots; two are measured together.							
Oct. 16.173	8	65	15	109	347.6	— 9.1	+ 71.2
Means ...	...	...	15	109	347.6	— 9.1	...
Group 1511. Two small spots.							
Oct. 18.398	1	16	1	19	310.4	— 7.4	+ 63.4
Means ...	...	...	1	19	310.4	— 7.4	...
Group 1512. Three small spots.							
Oct. 18.398	9	49	6	37	291.5	— 9.8	+ 44.5
Means ...	...	...	6	37	291.5	— 9.8	...
Group 1513. A small spot.							
Oct. 20.241	0	5	0	4	280.7	+ 13.2	+ 58.0
21.186	0	9	0	12	280.3	+ 13.1	+ 70.1
Means ...	...	...	0	8	280.50	+ 13.15	...
Group 1514. A close pair of small spots on October 20. Only one spot is seen on October 21, the group is not seen on October 22, and one spot is seen on October 23.							
Oct. 20.241	9	41	6	25	240.0	— 24.9	+ 17.3
21.186	0	6	0	4	241.8	— 24.9	+ 31.6
22.521	0	0	0	0	...	...	...
23.493	0	19	0	23	240.5	— 24.4	+ 60.7
Means ...	...	...	2	13	240.77	— 24.73	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 1515. A small spot not seen on October 22.							
1884. ^a Oct. 20.241	0	10	0	6	237.7	— 26.8	+ 15.0
21.186	2	10	1	7	237.4	— 27.3	+ 27.2
22.521	0	0	0	0	...	...	...
23.493	1	29	1	33	237.3	— 27.0	+ 57.5
Means ...	...	...	1	12	237.47	— 27.03	...
Group 1516. Two small spots, <i>a</i> and <i>b</i> , on October 20. They move apart and increase in size on the succeeding days. Small spots occasionally appear between or near them.							
Oct. 20.241	5	36	3	20	198.5	— 8.2	— 24.2
21.186	35	124	19	65	198.4	— 8.5	— 11.8
22.521	62	540	33	282	200.4	— 8.5	+ 7.7
23.493	99	717	54	396	201.2	— 8.6	+ 21.4
24	No photograph.	(97	580	201.2	— 8.7	+ 34.4)	
25.473	184	1000	140	765	201.1	— 8.7	+ 47.4
26.538	117	576	133	657	202.3	— 8.8	+ 62.6
27.447	20	284	50	579	202.4	— 8.9	+ 74.7
28.290	2	24	7	92	198.4	— 8.4	+ 81.9
Means ...	...	...	60	382	200.43	— 8.59	...
Group 1517. Two very small spots.							
Oct. 21.186	4	25	2	13	217.5	+ 18.8	+ 7.3
Means ...	...	...	2	13	217.5	+ 18.8	...
Group 1518. Two regular spots, <i>a</i> and <i>b</i> . Some small spots are seen near them on October 25 and the succeeding days.							
Oct. 21.186	5	46	14	125	132.4	— 13.9	— 77.8
22.521	23	123	26	135	132.4	— 14.1	— 60.3
23.493	28	186	22	147	132.4	— 14.1	— 47.4
24	No photograph.	(25	132	132.5	— 14.3	— 34.3)	
25.473	49	205	28	116	132.6	— 14.5	— 21.1
26.538	35	182	19	98	133.4	— 14.7	— 6.3
27.447	17	79	9	42	132.7	— 14.3	+ 5.0
28.290	9	43	5	23	132.7	— 14.4	+ 16.2
Means ...	...	...	18	102	132.64	— 14.29	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1519.								
Several small spots close together. Only one spot remains after October 22.								
1884. _d								
Oct. 22 ⁵²¹	o	142	o	77	212 ⁴	— 4 ⁰	+19 ⁷	
23 ⁴⁹³	o	12	o	7	211 ³	— 4 ³	+31 ⁵	
24	No photograph.		(o	9	212 ¹	— 4 ⁵	+45 ³)	
25 ⁴⁷³	o	11	o	11	212 ⁸	— 4 ⁶	+59 ¹	
Means	...	...	o	26	212 ¹⁵	— 4 ³⁵	...	
Group 1520.								
Two regular spots, <i>a</i> and <i>b</i> , on October 22. They increase in size on the succeeding days, and other spots appear between or near them. <i>b</i> has broken up into a number of spots by October 28.								
Oct. 22 ⁵²¹	o	57	o	115	119 ⁰	—14 ¹	—73 ⁷	
23 ⁴⁹³	63	260	74	302	117 ⁶	—14 ⁴	—62 ²	
24	No photograph.		(134	560	117 ⁴	—14 ⁸	—49 ⁴)	
25 ⁴⁷³	290	1226	194	818	117 ¹	—15 ¹	—36 ⁶	
26 ⁵³⁸	344	1673	197	967	117 ⁹	—15 ⁴	—21 ⁸	
27 ⁴⁴⁷	241	1492	130	805	119 ³	—14 ⁸	— 8 ⁴	
28 ²⁹⁰	200	1607	107	854	119 ⁵	—14 ⁶	+ 3 ⁰	
29 ⁵⁵⁵	288	1453	172	854	120 ³	—14 ⁵	+20 ⁴	
30 ⁴⁰⁷	165	1071	104	673	121 ⁵	—11 ¹	+32 ⁹	
31 ⁴⁴²	148	901	117	704	121 ⁷	—13 ⁷	+46 ⁷	
Nov. 1 ¹⁸⁶	124	708	120	684	121 ⁸	—13 ⁵	+56 ⁶	
2 ²⁰⁹	48	321	74	504	121 ⁵	—13 ⁶	+69 ⁸	
Means	...	...	119	653	119 ⁵⁵	—14 ¹³	...	
Group 1521.								
Two small spots close together, which are measured as one on October 23. The two spots, <i>a</i> and <i>b</i> , have increased in size by October 25, and two very small spots are seen near them. The small spots have disappeared by October 26, and <i>b</i> has disappeared by October 28.								
Oct. 23 ⁴⁹³	o	16	o	9	168 ⁷	—20 ⁷	—11 ¹	
24	No photograph.		(11	59	169 ⁴	—20 ⁹	+ 2 ⁷)	
25 ⁴⁷³	36	187	21	109	170 ¹	—21 ¹	+16 ⁴	
26 ⁵³⁸	31	104	20	68	170 ⁵	—21 ⁴	+30 ⁸	
27 ⁴⁴⁷	4	37	4	28	170 ³	—21 ⁴	+42 ⁶	
28 ²⁹⁰	3	17	3	17	171 ²	—22 ²	+54 ⁷	
Means	...	...	10	48	170 ⁰³	—21 ²⁸	...	
Group 1522.								
Three small spots on October 25. Other small spots appear on the succeeding days, and follow each other in a straight line. The preceding spot on October 29, <i>a</i> , and another spot following it, <i>b</i> , increase in size on the succeeding days, whilst the other spots diminish and disappear. <i>a</i> and <i>b</i> likewise diminish after November 1.								
Oct. 25 ⁴⁷³	6	30	4	22	109 ²	— 7 ⁰	—44 ⁵	
26 ⁵³⁸	5	85	3	51	109 ⁹	— 6 ⁸	—29 ⁸	
27 ⁴⁴⁷	o	56	o	30	110 ⁴	— 6 ²	—17 ³	
Group 1523.								
A small spot.								
Oct. 25 ⁴⁷³	8	18	6	15	102 ⁴	—13 ⁷	—51 ³	
26 ⁵³⁸	7	30	4	20	102 ⁶	—13 ⁸	—37 ¹	
Means	...	...	5	18	102 ⁵⁰	—13 ⁷⁵	...	
Group 1524.								
Two small spots, <i>a</i> and <i>b</i> .								
Oct. 26 ⁵³⁸	12	79	6	40	142 ⁴	+11 ¹	+ 2 ⁷	
27 ⁴⁴⁷	2	147	1	76	143 ⁴	+11 ²	+15 ⁷	
28 ²⁹⁰	9	35	5	21	144 ¹	+11 ⁰	+27 ⁶	
Means	...	...	4	46	143 ³⁰	+11 ¹⁰	...	
Group 1525.								
Two small spots, <i>a</i> and <i>b</i> . <i>b</i> has disappeared by October 27.								
Oct. 26 ⁵³⁸	o	25	o	32	72 ⁴	+ 8 ⁴	—67 ³	
27 ⁴⁴⁷	2	9	1	8	72 ⁶	+ 9 ²	—55 ¹	
Means	...	...	1	20	72 ⁵⁰	+ 8 ⁸⁰	...	
Group 1526.								
A regular spot, <i>a</i> , followed by a fainter spot, <i>b</i> . Other small spots are seen near it on several days. <i>b</i> has disappeared by November 3.								
Oct. 28 ²⁹⁰	9	40	11	52	48 ²	+ 9 ⁴	—68 ³	
29 ⁵⁵⁵	15	280	11	223	48 ⁸	+ 9 ⁹	—51 ¹	
30 ⁴⁰⁷	54	347	34	222	50 ⁰	+10 ²	—38 ⁶	
31 ⁴⁴²	48	353	27	197	50 ²	+10 ²	—24 ⁸	
Nov. 1 ¹⁸⁶	71	281	37	146	50 ⁶	+10 ²	—14 ⁶	
2 ²⁰⁹	32	264	16	132	50 ⁸	+10 ²	— 0 ⁹	
3 ⁴²¹	34	244	18	127	51 ⁰	+10 ⁹	+15 ³	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1526—continued.							
1884. _d					°	°	°
Nov. 4 ^h 55 ^m 2	30	197	18	115	51 ^h 4	+11 ^h 1	+30 ^h 6
5 ^h 44 ^m 5	18	116	12	80	52 ^h 1	+11 ^h 4	+43 ^h 0
6 ^h 32 ^m 6	21	110	19	96	52 ^h 6	+11 ^h 7	+55 ^h 1
7 ^h 40 ^m 8	8	40	11	55	52 ^h 4	+11 ^h 9	+69 ^h 3
Means ...	...	...	19	131	50 ^h 74	+10 ^h 65	...
Group 1527. Two small spots.							
Nov. 1 ^h 18 ^m 6	9	35	5	22	103 ^h 0	+5 ^h 7	+37 ^h 8
Means ...	...	...	5	22	103 ^h 0	+5 ^h 7	...
Group 1528. Two very small spots. Only one remains on November 2.							
Nov. 1 ^h 18 ^m 6	2	13	1	7	72 ^h 3	−9 ^h 5	+7 ^h 1
2 ^h 20 ^m 9	0	6	0	4	74 ^h 7	−9 ^h 1	+23 ^h 0
Means ...	...	...	1	6	73 ^h 50	−9 ^h 30	...
Group 1529. Three very small spots.							
Nov. 1 ^h 18 ^m 6	5	12	2	6	58 ^h 7	−24 ^h 2	−6 ^h 5
Means ...	...	...	2	6	58 ^h 7	−24 ^h 2	...
Group 1530. A very small spot. The spot seen on November 2 is probably not the same as that seen on November 1.							
Nov. 1 ^h 18 ^m 6	1	4	1	3	11 ^h 9	+10 ^h 1	−53 ^h 3
2 ^h 20 ^m 9	0	10	1	7	13 ^h 2	+9 ^h 5	−38 ^h 5
Means ...	...	...	1	5	12 ^h 55	+9 ^h 80	...
Group 1531. A small spot.							
Nov. 2 ^h 20 ^m 9	0	14	0	39	131 ^h 0	−6 ^h 3	+79 ^h 3
Means ...	...	...	0	39	131 ^h 0	−6 ^h 3	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1532. A small spot on November 9. The group has greatly increased in size by November 10, and then consists of a large regular spot, <i>a</i> , followed by a spot, <i>b</i> , of irregular outline. Small spots are also seen between and near them. <i>b</i> has begun to break up by November 13.							
1884. _d					°	°	°
Nov. 9 ^h 18 ^m 0	0	15	0	8	296 ^h 2	−10 ^h 2	−23 ^h 6
10 ^h 48 ^m 8	74	517	38	265	299 ^h 6	−8 ^h 7	−2 ^h 9
11 ^h 27 ^m 1	138	952	71	492	299 ^h 2	−8 ^h 6	+7 ^h 0
12 ^h 27 ^m 3	158	1109	86	603	298 ^h 8	−7 ^h 9	+19 ^h 8
13 ^h 15 ^m 6	113	850	69	511	299 ^h 2	−7 ^h 9	+31 ^h 8
14 ^h 50 ^m 3	66	644	52	508	299 ^h 3	−7 ^h 5	+49 ^h 7
15 ^h 52 ^m 6	11	172	15	211	301 ^h 3	−7 ^h 2	+65 ^h 1
16 ^h 23 ^m 4	15	98	36	201	302 ^h 1	−7 ^h 2	+75 ^h 3
Means ...	...	...	46	350	299 ^h 46	−8 ^h 15	...
Group 1533. A small spot. A second small spot is seen close to it, and measured with it on November 11.							
Nov. 10 ^h 48 ^m 8	0	20	0	13	336 ^h 5	−6 ^h 3	+34 ^h 0
11 ^h 27 ^m 1	13	73	9	52	336 ^h 3	−5 ^h 6	+44 ^h 1
12 ^h 27 ^m 3	0	2	0	2	335 ^h 4	−5 ^h 2	+56 ^h 4
Means ...	...	...	3	22	336 ^h 07	−5 ^h 70	...
Group 1534. Three small spots. The two preceding spots form a close pair and are measured together.							
Nov. 10 ^h 48 ^m 8	12	56	6	29	288 ^h 9	+4 ^h 1	−13 ^h 6
11 ^h 27 ^m 1	9	30	4	14	289 ^h 3	+4 ^h 2	−2 ^h 9
Means ...	...	...	5	22	289 ^h 10	+4 ^h 15	...
Group 1535. Two small spots, <i>a</i> and <i>b</i> . Several small spots are seen following <i>a</i> on November 13.							
Nov. 10 ^h 48 ^m 8	10	46	8	37	250 ^h 2	+3 ^h 7	−52 ^h 3
11 ^h 27 ^m 1	7	22	5	14	251 ^h 6	+3 ^h 7	−40 ^h 6
12 ^h 27 ^m 3	12	46	6	25	253 ^h 4	+4 ^h 4	−25 ^h 6
13 ^h 15 ^m 6	12	63	6	33	253 ^h 4	+4 ^h 4	−14 ^h 0
14 ^h 50 ^m 3	0	12	0	6	256 ^h 0	+5 ^h 2	+6 ^h 4
Means ...	...	...	5	23	252 ^h 92	+4 ^h 28	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1536. A close pair of very small spots.								Group 1540. Two small spots.							
1884. _d Nov. 12 ²⁷³ 13 ¹⁵⁶	4 5	13 15	4 3	11 10	224 ⁷ 224 ⁵	— 3 ⁷ — 3 ⁶	— 54 ³ — 42 ⁹	1884. _d Nov. 13 ¹⁵⁶	2	27	1	18	228 ⁶	— 8 ⁹	— 38 ⁸
Means ...	...	...	4	11	224 ⁶⁰	— 3 ⁶⁵	...	Means ...	...	...	1	18	228 ⁶	— 8 ⁹	...
Group 1537. Two small spots, <i>a</i> and <i>b</i> . On November 14 and 15 each spot has become a compact cluster of very small spots. A third spot, <i>c</i> , is seen on November 15.								Group 1541. A regular spot, <i>a</i> . A small spot appears following it on November 18. Other small spots forming an irregular stream appear on succeeding days. A second regular spot, <i>b</i> , appears closely following <i>a</i> on November 19.							
Nov. 12 ²⁷³ 13 ¹⁵⁶ 14 ⁵⁰³ 15 ⁵²⁶ 16 ²³⁴ 17 ²⁸⁴	4 4 0 9 4 0	26 54 40 97 45 8	5 3 0 5 2 0	28 43 24 54 24 5	217 ⁴ 217 ² 218 ³ 218 ¹ 218 ⁰ 218 ²	+ 18 ³ + 18 ⁵ + 18 ⁷ + 18 ⁷ + 19 ³ + 19 ⁷	— 61 ⁶ — 50 ² — 31 ³ — 18 ¹ — 8 ⁸ + 5 ³	Nov. 16 ²³⁴ 17 ²⁸⁴ 18 ²⁸⁴ 19 ⁴⁶⁷ 20 ²⁹¹ 21 ²⁸⁴ 22 ²³³ 23 ²²⁵ 24 ²⁹³ 25 ²⁵⁵	12 17 30 70 52 82 47 30 6 2	82 154 202 354 552 452 308 211 74 23	17 15 20 40 27 41 24 17 4 1	122 136 137 199 289 228 160 119 50 20	156 ⁴ 157 ⁸ 157 ⁶ 157 ¹ 157 ¹ 158 ³ 159 ⁸ 160 ⁷ 161 ⁶ 161 ⁶	+ 7 ⁹ + 7 ⁷ + 7 ⁷ + 8 ⁰ + 7 ⁹ + 7 ⁸ + 7 ⁴ + 7 ⁵ + 7 ⁴ + 7 ⁷	— 70 ⁴ — 55 ¹ — 42 ¹ — 27 ¹ — 16 ² — 1 ⁹ + 12 ¹ + 26 ⁰ + 41 ⁰ + 53 ⁷
Means ...	...	...	3	30	217 ⁸⁷	+ 18 ⁸⁷	...	Means ...	...	...	21	146	158 ⁸⁰	+ 7 ⁷⁰	...
Group 1538. A very close pair of spots.								Group 1542. A small spot on November 18. Other spots appear on the succeeding days and form an irregular and somewhat scattered group. The group has become more condensed by November 22, when it consists of a large regular spot, <i>a</i> , closely followed by a number of small spots in a straight line. By November 24 these have all coalesced with <i>a</i> to form one large wedge-shaped spot, the point of the wedge following. The point of the wedge has become detached by November 26.							
Nov. 12 ²⁷³ 13 ¹⁵⁶ 14 ⁵⁰³ 15 ⁵²⁶ 16 ²³⁴	9 14 0 6 2	64 77 66 23 13	14 14 0 3 1	105 77 45 13 7	207 ⁶ 208 ¹ 208 ⁵ 208 ⁵ 208 ⁵	— 8 ⁶ — 8 ³ — 8 ¹ — 8 ¹ — 8 ³	— 71 ⁴ — 59 ³ — 41 ¹ — 27 ⁷ — 18 ³	Nov. 18 ²⁸⁴ 19 ⁴⁶⁷ 20 ²⁹¹ 21 ²⁸⁴ 22 ²³³ 23 ²²⁵ 24 ²⁹³ 25 ²⁵⁵ 26 ²⁷³ 27 28 ²⁸⁷	0 5 9 41 60 81 130 160 96 27 33	11 18 149 217 494 726 1114 1017 877 No photograph. 264	0 3 6 22 30 41 71 99 73 73 73	10 12 92 119 252 372 607 630 670 605 539	142 ⁵ 142 ⁹ 139 ⁴ 140 ² 141 ⁰ 141 ⁶ 142 ⁰ 142 ⁹ 144 ⁵ 144 ⁰ 143 ⁵	— 7 ⁵ — 7 ² — 7 ⁸ — 7 ⁴ — 7 ² — 6 ⁹ — 7 ¹ — 7 ² — 7 ⁴ — 7 ⁴ — 7 ³	— 57 ² — 41 ³ — 33 ⁹ — 20 ⁰ — 6 ⁷ + 6 ⁹ + 21 ⁴ + 35 ⁰ + 50 ⁰ + 62 ⁸ + 75 ⁵
Means ...	...	...	6	49	208 ²⁴	— 8 ²⁸	...	Means ...	...	...	45	355	142 ²³	— 7 ³¹	...
Group 1539. A small spot.								Group 1543. Two small spots.							
Nov. 12 ²⁷³ 13 ¹⁵⁶ 14 ⁵⁰³ 15 ⁵²⁶ 16 ²³⁴ 17 ²⁸⁴	2 6 7 0 5 0	8 15 15 23 15 13	4 8 5 0 3 0	17 18 11 14 8 7	203 ⁰ 202 ⁷ 202 ⁹ 203 ² 203 ⁵ 204 ⁰	+ 7 ⁷ + 8 ² + 8 ⁶ + 8 ⁶ + 8 ⁷ + 8 ⁸	— 76 ⁰ — 64 ⁷ — 46 ⁷ — 33 ⁰ — 23 ³ — 8 ⁹	Nov. 19 ⁴⁶⁷ 20 ²⁹¹	5 3	45 23	4 3	41 30	239 ⁸ 238 ²	— 16 ⁸ — 17 ³	+ 55 ⁶ + 64 ⁹
Means ...	...	...	3	13	203 ²²	+ 8 ⁴³	...	Means ...	...	...	4	36	239 ⁰⁰	— 17 ⁰⁵	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1544.							
A small regular spot, <i>a</i> , with some small faint spots following it on November 21 and 22. On November 23 four spots are seen. Only <i>a</i> is seen after November 23.							
1884. <i>a</i>					°	°	°
Nov. 21.284	8	44	5	29	124.8	-15.9	-35.4
22.233	6	33	3	19	125.6	-15.6	-22.1
23.225	23	58	12	30	126.5	-16.1	-8.2
24.293	0	28	0	15	127.8	-15.4	+7.2
25.255	6	12	3	7	128.3	-14.9	+20.4
26.273	0	18	0	11	128.4	-14.7	+33.9
Means ...	...	...	4	19	126.90	-15.43	...
Group 1545.							
A few small spots on November 26. The group has increased in size by November 28, and forms a nearly continuous chain of spots. The group has broken up by November 29, and only six spots remain. Of these six, only three, <i>a</i> , <i>b</i> , and <i>c</i> , are seen on December 1 and 2.							
Nov. 26.273	2	64	1	37	71.5	-15.9	-23.0
27	No photograph.	(16	120	72.3	-15.5	-9.0)	
28.287	60	389	31	203	73.1	-15.0	+5.1
29.503	59	234	33	132	72.9	-15.2	+21.0
30	No photograph.	(25	138	73.4	-15.3	+32.7)	
Dec. 1.203	22	204	16	144	73.8	-15.4	+44.3
2.289	8	108	8	109	73.8	-15.5	+58.6
Means ...	...	...	19	126	72.97	-15.40	...
Group 1546.							
Four spots on November 29. On November 28 they are not readily separable, and are measured in two parts. By December 1 and the succeeding days the group has become a long straight and almost continuous stream of spots, the first spot, <i>a</i> , becoming a large regular spot by December 2. The following spots diminish in size and number rapidly, and all have disappeared by December 8.							
Nov. 28.287	5	49	12	142	347.8	+3.9	-80.2
29.503	27	222	33	287	344.7	+5.0	-67.2
30	No photograph.	(26	348	346.1	+4.5	-54.6)	
Dec. 1.203	27	607	18	409	347.5	+3.9	-42.0
2.289	102	835	57	465	349.4	+3.5	-25.8
3.290	114	846	58	432	350.2	+3.4	-11.8
4.458	112	727	56	364	351.8	+3.4	+5.1
5.479	100	552	54	293	352.5	+3.3	+19.4
6.255	74	521	43	300	352.1	+3.4	+29.2
7.441	57	382	41	276	353.3	+3.3	+46.2
8.262	50	318	46	293	353.5	+3.5	+57.0
9.214	39	227	58	340	354.6	+3.5	+70.6
Means ...	...	...	42	329	350.29	+3.72	...
Group 1547.							
Four spots on November 29, two of which are measured together. On December 1 the group consists of two large regular spots, <i>a</i> and <i>b</i> . By December 2 <i>a</i> has become the leader of a straight stream of small spots. Some small spots appear following <i>b</i> on December 2, and a second stream is thus formed. The two streams have coalesced by December 5, and form a large irregular spot, <i>c</i> , close to but not touching <i>b</i> .							
1884. <i>a</i>					°	°	°
Nov. 29.503	16	125	11	84	12.0	+14.0	-39.9
30	No photograph.	(34	259	12.8	+13.4	-28.0)	
Dec. 1.203	107	810	57	434	13.5	+12.8	-16.0
2.289	103	606	53	309	13.3	+12.6	-1.9
3.290	105	573	55	301	13.4	+12.7	+11.4
4.458	118	661	67	377	13.3	+13.6	+26.6
5.479	68	671	46	449	12.9	+13.7	+39.8
6.255	58	631	46	513	13.5	+14.2	+50.6
7.441	31	354	39	450	13.1	+14.4	+66.0
8.262	11	233	23	500	12.5	+13.8	+76.0
Means ...	...	...	43	368	13.03	+13.52	...
Group 1548.							
A regular spot.							
Dec. 2.289	5	26	7	36	306.4	-6.7	-68.8
3.290	12	58	10	51	306.7	-6.6	-55.3
4.458	9	51	6	34	307.1	-6.5	-39.6
5.479	18	49	10	28	307.3	-6.5	-25.8
6.255	5	48	3	25	307.4	-6.6	-15.5
7.441	6	32	3	16	307.4	-6.5	+0.3
8.262	0	20	0	10	307.4	-6.5	+10.9
Means ...	...	...	6	29	307.10	-6.56	...
Group 1549.							
A regular spot. It has divided into two spots, <i>a</i> and <i>b</i> , by December 13; <i>b</i> has disappeared by December 15.							
Dec. 5.479	16	66	30	126	258.1	+4.4	-75.0
6.255	19	123	23	145	258.0	+4.3	-64.9
7.441	34	228	26	175	258.0	+4.3	-49.1
8.262	56	292	36	186	258.4	+4.4	-38.1
9.214	39	292	21	161	259.0	+4.4	-25.0
10.281	63	305	32	156	259.0	+4.9	-10.9
11.251	51	320	25	160	259.0	+4.9	+1.9
12.267	20	262	11	137	259.4	+5.4	+15.6
13.248	41	174	23	100	259.6	+5.1	+28.9
14.380	30	102	21	72	260.2	+5.5	+44.3
15.262	5	21	5	20	261.1	+5.4	+56.9
Means ...	...	...	23	131	259.07	+4.82	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1550.							
Two spots, <i>a</i> and <i>b</i> ; <i>b</i> has disappeared by December 10.							
1884. _a Dec. 9 ^h 21 ^m 4 10 ^h 28 ^m 1	15 12	53 31	14 25	54 76	344 ^o 0 346 ^o 5	— 7 ^o 0 — 7 ^o 3	+60 ^o 0 +76 ^o 6
Means ...	...	...	20	65	345 ^o 25	— 7 ^o 15	...
Group 1551.							
Two faint spots measured together on December 9. Only one remains on December 10.							
Dec. 9 ^h 21 ^m 4 10 ^h 28 ^m 1	0 0	39 25	0 0	23 19	315 ^o 4 316 ^o 0	— 12 ^o 3 — 13 ^o 7	+31 ^o 4 +46 ^o 1
Means ...	...	...	0	21	315 ^o 70	— 13 ^o 00	...
Group 1552.							
Two clusters of small spots on December 9. On December 10 the group consists of two regular spots, <i>a</i> and <i>b</i> , and several small spots between or near them. <i>b</i> has disappeared by December 14.							
Dec. 9 ^h 21 ^m 4 10 ^h 28 ^m 1 11 ^h 25 ^m 1 12 ^h 26 ^m 7 13 ^h 24 ^m 8 14 ^h 38 ^m 0 15 ^h 26 ^m 9	36 59 35 30 32 6 7	162 439 375 278 166 98 45	19 30 19 18 22 6 13	85 222 196 160 115 99 75	269 ^o 1 269 ^o 8 270 ^o 8 272 ^o 3 273 ^o 6 276 ^o 2 277 ^o 1	— 10 ^o 6 — 10 ^o 1 — 10 ^o 1 — 9 ^o 6 — 9 ^o 1 — 7 ^o 4 — 7 ^o 3	— 14 ^o 9 — 0 ^o 1 + 13 ^o 7 + 28 ^o 5 + 42 ^o 9 + 60 ^o 3 + 72 ^o 9
Means ...	...	...	18	136	272 ^o 70	— 9 ^o 17	...
Group 1553.							
A regular spot, <i>a</i> , followed by a stream of small spots. The latter have disappeared by December 15.							
Dec. 9 ^h 21 ^m 4 10 ^h 28 ^m 1 11 ^h 25 ^m 1 12 ^h 26 ^m 7 13 ^h 24 ^m 8 14 ^h 38 ^m 0 15 ^h 26 ^m 9 16 ^h 48 ^m 7 17 ^h 19 ^m 3	8 22 30 46 45 12 13 2 3	76 131 197 253 343 178 38 19 13	12 20 21 26 25 6 7 1 2	113 120 138 146 182 90 21 12 10	214 ^o 1 213 ^o 9 213 ^o 9 216 ^o 4 215 ^o 2 216 ^o 6 223 ^o 3 224 ^o 9 225 ^o 9	— 12 ^o 4 — 12 ^o 3 — 12 ^o 4 — 11 ^o 9 — 12 ^o 3 — 12 ^o 2 — 11 ^o 9 — 11 ^o 9 — 11 ^o 4	— 69 ^o 9 — 56 ^o 0 — 43 ^o 2 — 27 ^o 4 — 15 ^o 5 + 0 ^o 7 + 19 ^o 1 + 36 ^o 8 + 47 ^o 1
Means ...	...	...	13	92	218 ^o 24	— 12 ^o 08	...
Group 1554.							
A cluster of small faint spots on December 10; on December 11 two considerable spots.							
1884. _a Dec. 10 ^h 28 ^m 1 11 ^h 25 ^m 1	0 8	25 87	0 12	24 147	328 ^o 6 329 ^o 6	— 9 ^o 3 — 9 ^o 7	+58 ^o 7 +72 ^o 5
Means ...	...	...	6	86	329 ^o 10	— 9 ^o 50	...
Group 1555.							
A somewhat faint spot.							
Dec. 13 ^h 24 ^m 8 14 ^h 38 ^m 0 15 ^h 26 ^m 9 16 ^h 48 ^m 7 17 ^h 19 ^m 3	0 10 4 0 0	16 51 30 14 14	0 11 3 0 0	39 58 24 9 8	153 ^o 2 153 ^o 4 153 ^o 6 154 ^o 0 153 ^o 9	+15 ^o 6 +15 ^o 9 +15 ^o 5 +15 ^o 3 +14 ^o 6	— 77 ^o 5 — 62 ^o 5 — 50 ^o 6 — 34 ^o 1 — 24 ^o 9
Means ...	...	...	3	28	153 ^o 62	+15 ^o 38	...
Group 1556.							
A large regular spot, <i>a</i> . A small spot is seen near <i>a</i> on December 16–17, and a second small spot on December 17. On December 19 on passing the central meridian two irregular spots, one of them large, appear close to <i>a</i> . These break up into a number of small spots, and have disappeared by December 24.							
Dec. 14 ^h 38 ^m 0 15 ^h 26 ^m 9 16 ^h 48 ^m 7 17 ^h 19 ^m 3 18 ^h 22 ^m 9 19 ^h 50 ^m 5 20 ^h 21 ^m 1 21 ^h 50 ^m 8 22 ^h 48 ^m 9 23 24 ^h 27 ^m 3 25 ^h 15 ^m 8	36 36 53 62 59 60 75 99 82 23 21 11	154 207 332 406 389 738 612 586 438 No photograph. 161 99	56 36 37 38 32 30 38 54 51 (36 21 17	240 206 230 247 207 370 312 322 274 216 158 156	144 ^o 5 144 ^o 4 144 ^o 5 144 ^o 9 144 ^o 7 145 ^o 5 145 ^o 4 145 ^o 5 145 ^o 6 145 ^o 2 144 ^o 8 145 ^o 4	— 7 ^o 5 — 7 ^o 5 — 7 ^o 4 — 7 ^o 8 — 7 ^o 2 — 6 ^o 8 — 7 ^o 1 — 6 ^o 5 — 6 ^o 8 — 6 ^o 5 — 6 ^o 2 — 6 ^o 1	— 71 ^o 4 — 59 ^o 8 — 43 ^o 6 — 33 ^o 9 — 20 ^o 5 — 2 ^o 9 + 6 ^o 3 + 23 ^o 5 + 36 ^o 5 + 47 ^o 9 + 59 ^o 2 + 71 ^o 5
Means ...	...	...	37	245	145 ^o 03	— 6 ^o 95	...
Group 1557.							
A small faint spot on December 15. Two close pairs of spots on December 16. The group increases in size on the succeeding days and becomes an irregular stream of small spots.							
Dec. 15 ^h 26 ^m 9 16 ^h 48 ^m 7 17 ^h 19 ^m 3	0 9 34	5 91 261	0 5 19	3 50 142	170 ^o 2 169 ^o 4 169 ^o 7	— 18 ^o 0 — 20 ^o 0 — 19 ^o 8	— 34 ^o 0 — 18 ^o 7 — 9 ^o 1

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1557—continued.							
1884. _a					°	°	°
Dec. 18 ^h 22 ^m 9	30	255	16	135	170°9	-19°5	+5°7
19 ^h 50 ^m 5	20	334	12	191	172°0	-18°8	+23°6
20 ^h 21 ^m 1	33	322	21	204	172°7	-19°0	+33°6
21 ^h 50 ^m 8	38	196	32	166	174°1	-18°7	+52°1
22 ^h 48 ^m 9	13	96	15	111	172°6	-18°6	+63°5
Means ...	...	...	15	125	171°45	-19°05	...
Group 1558. A regular spot.							
Dec. 17 ^h 19 ^m 3	9	70	21	158	101°6	-13°9	-77°2
18 ^h 22 ^m 9	13	102	15	116	101°5	-13°4	-63°7
19 ^h 50 ^m 5	26	172	20	128	101°3	-13°3	-47°1
20 ^h 21 ^m 1	33	185	21	120	101°7	-13°6	-37°4
21 ^h 50 ^m 8	56	206	30	112	102°2	-13°0	-19°8
22 ^h 48 ^m 9	33	254	17	130	102°5	-13°1	-6°6
23	No photograph.	(14	119	102°7	-13°0	+5°4)	
24 ^h 27 ^m 3	21	203	11	108	102°9	-13°0	+17°3
25 ^h 15 ^m 8	13	183	8	106	103°2	-13°0	+29°3
26 ^h 26 ^m 5	10	77	7	54	102°7	-12°7	+43°4
27 ^h 20 ^m 9	0	18	0	16	103°0	-12°7	+56°1
Means ...	...	...	15	106	102°30	-13°15	...
Group 1559. A regular spot. A small spot is seen near it on December 19.							
Dec. 18 ^h 22 ^m 9	5	59	5	57	106°8	+7°4	-58°4
19 ^h 50 ^m 5	12	104	8	69	108°3	+8°2	-40°1
20 ^h 21 ^m 1	21	65	12	38	109°9	+8°1	-29°2
21 ^h 50 ^m 8	15	53	8	28	111°5	+8°8	-10°5
22 ^h 48 ^m 9	24	38	12	20	112°4	+8°7	+3°3
23	No photograph.	(6	21	112°8	+8°8	+15°5)	
24 ^h 27 ^m 3	0	38	0	22	113°2	+8°9	+27°6
25 ^h 15 ^m 8	3	16	2	11	113°2	+9°0	+39°3
26 ^h 26 ^m 5	5	22	5	19	113°1	+8°9	+53°8
27 ^h 20 ^m 9	5	10	6	13	113°5	+8°5	+66°6
Means ...	...	...	6	30	111°47	+8°53	...
Group 1560. A small spot, <i>a</i> , which has disappeared by December 22. A second spot, <i>b</i> , appears on December 21.							
Dec. 20 ^h 21 ^m 1	0	10	0	5	155°3	-19°4	+16°2
21 ^h 50 ^m 8	5	41	3	26	154°5	-20°3	+32°5
22 ^h 48 ^m 9	0	8	0	6	153°9	-19°5	+44°8
Means ...	...	...	1	12	154°57	-19°73	...
Group 1561. A very large regular spot, <i>a</i> , followed at a considerable distance by three regular but much smaller spots, <i>b</i> , <i>c</i> , and <i>d</i> . A number of small spots are scattered irregularly over the intermediate space. <i>a</i> and <i>c</i> have very dark umbrae.							
1884. _a					°	°	°
Dec. 20 ^h 21 ^m 1	13	225	36	640	59°7	+7°7	-79°4
21 ^h 50 ^m 8	108	730	143	928	56°0	+9°2	-66°0
22 ^h 48 ^m 9	202	1318	171	1152	55°0	+8°5	-54°1
23	No photograph.	(150	1017	55°6	+8°4	-41°8)	
24 ^h 27 ^m 3	224	1499	130	882	56°2	+8°2	-29°4
25 ^h 15 ^m 8	244	1930	132	1042	55°7	+8°2	-18°2
26 ^h 26 ^m 5	221	1605	113	824	56°3	+8°5	-3°0
27 ^h 20 ^m 9	186	1631	96	847	56°2	+8°7	+9°3
28 ^h 18 ^m 0	236	1304	133	727	56°9	+8°9	+22°8
29 ^h 21 ^m 8	142	1002	91	644	56°6	+9°0	+36°2
30 ^h 21 ^m 9	89	693	71	554	56°9	+9°4	+49°7
31 ^h 26 ^m 2	44	417	53	481	56°7	+9°1	+63°2
1885. Jan. 1 ^h 24 ^m 0	13	168	31	398	57°9	+9°4	+77°2
Means ...	...	...	104	780	56°59	+8°71	...
Group 1562. Two small spots.							
1884. Dec. 25 ^h 15 ^m 8	4	48	2	25	89°4	-13°4	+15°5
Means ...	...	...	2	25	89°4	-13°4	...
Group 1563. A regular spot, <i>a</i> . A small spot, <i>b</i> , is seen preceding it on December 26 and 27, and another, <i>c</i> , on December 29 and 30. A fourth spot, <i>d</i> , is seen on December 29.							
Dec. 25 ^h 15 ^m 8	7	54	17	134	355°8	+1°5	-78°1
26 ^h 26 ^m 5	14	123	16	140	355°7	+1°7	-63°6
27 ^h 20 ^m 9	9	144	8	117	355°6	+1°5	-51°3
28 ^h 18 ^m 0	17	194	11	126	355°2	+1°5	-38°9
29 ^h 21 ^m 8	33	211	18	118	355°7	+1°6	-24°7
30 ^h 21 ^m 9	19	206	10	107	355°8	+1°8	-11°4
31 ^h 26 ^m 2	19	190	9	95	356°0	+1°2	+2°5
1885. Jan. 1 ^h 24 ^m 0	23	199	12	103	356°1	+1°7	+15°4
2 ^h 28 ^m 2	30	158	17	92	356°2	+1°5	+29°3

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1563—continued.								Group 1564—continued.							
1885. _d					°	°	°	1884. _d					°	°	°
Jan. 3 ^h 239	27	134	18	90	356.0	+ 1.7	+ 41.7	Dec. 30 ^h 219	0	0	0	0	...	...	...
4 ^h 245	17	104	15	94	356.7	+ 1.9	+ 55.7	31 ^h 262	9	127	5	67	8.9	— 9.8	+ 15.4
5 ^h 175	12	50	16	67	356.8	+ 2.0	+ 68.0	1885.							
Means ...	...	...	14	107	355.97	+ 1.63	...	Jan. 1 ^h 240	0	17	0	10	11.2	— 10.7	+ 30.5
Group 1564.								Group 1565.							
A small faint spot on December 27 and 28, two small faint spots on December 29. Neither is seen on December 30. On December 31 the group consists of three small spots, two of which are measured together. Only one spot remains on January 1.								A small regular spot.							
1884.								1884.							
Dec. 27 ^h 209	0	35	0	23	8.1	— 9.0	— 38.8	Dec. 30 ^h 219	5	30	6	36	302.0	— 2.8	— 65.2
28 ^h 180	0	14	0	8	8.5	— 8.7	— 25.6	Means ...	...	...	6	36	302.0	— 2.8	...
29 ^h 218	0	13	0	8	5.5	— 9.4	— 14.9								

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.				
Group 1566.								Group 1570.								
Two small spots, <i>a</i> and <i>b</i> ; <i>a</i> moves forward and increases in size, and has broken up into several small spots by January 4, which are, however, still measured together. <i>b</i> has disappeared by January 4, but several other small spots have appeared near its place. The entire group forms a long straight stream on January 5, of which only the first and last spots remain on January 6, and only the first spot on January 7.								Three small spots <i>a</i> , <i>b</i> , and <i>c</i> ; <i>a</i> has disappeared by January 15, <i>b</i> by January 13.								
1885. _d					°	°	°	1885. _d					°	°	°	
Jan. 1 ²⁴⁰	0	44	0	42	282.2	-13.5	-58.5	Jan. 12 ⁴⁹⁹	14	99	8	55	172.2	-18.9	-20.1	
2 ²⁸²	21	76	15	54	283.2	-13.6	-43.7	13 ⁴⁷⁰	46	167	24	87	171.8	-18.6	-7.8	
3 ²³⁹	41	142	23	82	285.4	-12.7	-28.9	14 ²¹⁸	30	161	15	84	171.5	-18.8	+1.8	
4 ²⁴⁵	29	142	16	76	285.8	-13.2	-15.2	15 ²³⁶	15	41	8	22	169.6	-18.6	+13.3	
5 ¹⁷⁵	15	184	8	93	285.0	-12.7	-3.8	16 ²⁹²	9	40	5	23	170.3	-18.7	+27.8	
6 ⁴⁶⁹	5	44	3	23	286.9	-12.8	+15.2	17 ²¹⁷	4	12	3	8	170.1	-18.7	+39.9	
7 ⁴⁵⁵	0	34	0	20	290.6	-12.7	+31.8	Means	11	47	170.92	-18.72	...
8 ⁴⁵⁰	0	29	0	21	291.5	-13.1	+45.7	Group 1571.								
9 ⁵¹⁷	0	12	0	12	292.6	-12.6	+60.9	Three small spots, <i>a</i> , <i>b</i> , and <i>c</i> , on January 15; <i>b</i> has disappeared by January 17, <i>c</i> by 18. The group forms a compact cluster on January 15, but <i>a</i> and <i>c</i> have moved in latitude by January 16, so that the three spots then follow each other on nearly the same parallel of latitude.								
Means	...	...	7	47	287.02	-12.99	...	Jan. 15 ²³⁶	21	63	11	33	146.7	-20.2	-9.6
Group 1567.								16 ²⁹²	8	64	4	34	148.0	-19.9	+5.5	
A small faint spot, <i>a</i> , on January 1 and 2. Five other spots measured in two clusters are seen near it on January 3. Of these all but one, <i>b</i> , has disappeared by January 4, <i>a</i> has disappeared by January 7 and <i>b</i> by January 9. A third small spot, <i>c</i> , is seen on January 9 and 10.								17 ²¹⁷	7	42	4	23	148.0	-19.7	+17.8	
Jan. 1 ²⁴⁰	0	7	0	9	273.2	+11.4	-67.5	18 ²¹²	1	6	1	4	150.2	-18.9	+33.1	
2 ²⁸²	0	18	0	16	273.8	+11.7	-53.1	Means	5	24	148.23	-19.68	...
3 ²³⁹	37	117	24	79	274.1	+12.2	-40.2	Group 1572.								
4 ²⁴⁵	18	175	10	102	275.4	+12.2	-25.6	Two small spots, <i>a</i> and <i>b</i> , on January 16. These increase in size, and other spots appear near them on succeeding days; <i>b</i> has broken up into a number of small spots by January 20, and <i>a</i> has divided to form two regular spots, <i>c</i> and <i>d</i> , by January 22. The smaller following spots have all disappeared by January 24, leaving <i>c</i> and <i>d</i> alone.								
5 ¹⁷⁵	13	180	7	96	276.2	+12.3	-12.6	Jan. 16 ²⁹²	0	41	0	46	79.8	-21.7	-62.7	
6 ⁴⁶⁹	0	83	0	44	275.8	+12.3	+4.1	17 ²¹⁷	15	208	12	165	80.2	-21.6	-50.0	
7 ⁴⁵⁵	0	35	0	19	274.2	+12.6	+15.4	18 ²¹²	39	417	25	271	79.6	-21.5	-37.5	
8 ⁴⁵⁰	0	31	0	18	274.3	+12.4	+28.5	19	No photograph.	(62	372	79.8	-21.4	-24.3)		
9 ⁵¹⁷	0	24	0	18	277.5	+12.6	+45.8	20 ¹⁸⁶	184	894	98	473	80.0	-21.3	-11.1	
10 ²⁹⁰	4	40	4	38	277.1	+12.7	+55.6	21 ¹⁸³	119	921	61	479	79.2	-21.2	+1.1	
Means	...	...	5	44	275.16	+12.24	...	22 ²¹⁴	93	514	50	278	79.3	-21.1	+14.8
Group 1568.								23 ³⁶⁶	26	332	15	201	80.2	-20.8	+30.9	
Several very small faint spots.								24 ²²⁵	41	216	29	151	80.9	-20.3	+43.0	
Jan. 2 ²⁸²	0	35	0	19	308.5	-3.3	-18.4	25 ⁵⁴²	17	121	17	121	80.7	-20.2	+60.2	
Means	...	...	0	19	308.5	-3.3	...	26 ²⁴⁶	12	60	16	85	81.6	-19.8	+70.2
Group 1569.								Means	35	240	80.12	-20.99	...
A small spot, <i>a</i> , followed by two or three small faint spots. The latter undergo several changes and are usually measured together as one.								Group 1573.								
Jan. 2 ²⁸²	7	52	5	32	291.4	-4.0	-35.5	Two small faint spots on January 18. The group has greatly increased in size by January 20, and consists of two large spots, <i>a</i> and <i>b</i> , and one small one. <i>a</i> diminishes on the following days, throwing off small spots in the direction of <i>b</i> ; these spots combine to form a large spot, <i>c</i> , on January 23.								
3 ²³⁹	14	96	7	52	291.8	-4.1	-22.5	Jan. 18 ²¹²	0	53	0	27	111.1	-6.0	-6.0	
4 ²⁴⁵	19	65	9	34	292.3	-4.6	-8.7	19	No photograph.	(40	282	110.8	-6.2	+6.7)		
5 ¹⁷⁵	0	111	0	56	292.7	-4.0	+3.9	20 ¹⁸⁶	148	1014	79	537	110.4	-6.4	+19.3	
Means	...	...	5	44	292.05	-4.18	...	21 ¹⁸³	169	940	99	549	109.2	-6.2	+31.1
								22 ²¹⁴	160	948	113	664	108.9	-5.6	+44.4	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1573—continued.								Group 1577. A small spot.							
1885. _d Jan. 23 ^h 36 ^m	141	916	139	887	108 ^o .4	— 5 ^o .1	+ 59 ^o .1	1885. _d Jan. 22 ^h 21 ^m 4	1	9	1	10	358 ^o .9	+ 0 ^o .9	— 65 ^o .6
24 ^h 22 ^m 5	125	603	177	872	108 ^o .0	— 4 ^o .8	+ 70 ^o .1	Means ...	...	...	1	10	358 ^o .9	+ 0 ^o .9	...
25 ^h 54 ^m 2	0	49	0	300	106 ^o .1	— 3 ^o .2	+ 85 ^o .6								
Means ...	...	...	81	515	109 ^o .11	— 5 ^o .44	...								
Group 1574. A small spot, <i>a</i> , on January 20. Two others, <i>b</i> and <i>c</i> , have appeared near it by January 21; <i>a</i> has disappeared by January 22. A fourth spot, <i>d</i> , is seen on January 24.								Group 1578. A regular spot, <i>a</i> . Two small spots are seen near it on January 28.							
Jan. 20 ^h 18 ^m 6	7	38	4	21	72 ^o .5	+ 8 ^o .1	— 18 ^o .6	Jan. 24 ^h 22 ^m 5	7	34	13	65	324 ^o .9	+ 11 ^o .4	— 73 ^o .0
21 ^h 18 ^m 3	0	62	0	32	72 ^o .8	+ 7 ^o .6	— 5 ^o .3	25 ^h 54 ^m 2	7	58	7	55	324 ^o .7	+ 11 ^o .6	— 55 ^o .8
22 ^h 21 ^m 4	4	48	2	24	70 ^o .9	+ 7 ^o .3	+ 6 ^o .4	26 ^h 24 ^m 6	17	121	13	94	324 ^o .5	+ 11 ^o .4	— 46 ^o .9
23 ^h 36 ^m 6	9	62	5	34	70 ^o .4	+ 7 ^o .2	+ 21 ^o .1	27 ^h 47 ^m 3	12	127	7	77	324 ^o .7	+ 11 ^o .7	— 30 ^o .6
24 ^h 22 ^m 5	0	36	0	22	70 ^o .7	+ 7 ^o .3	+ 32 ^o .8	28 ^h 22 ^m 0	31	142	17	79	324 ^o .3	+ 11 ^o .7	— 21 ^o .1
25 ^h 54 ^m 2	0	33	0	27	70 ^o .8	+ 8 ^o .0	+ 50 ^o .3	29 ^h 14 ^m 8	26	101	14	54	324 ^o .6	+ 11 ^o .7	— 8 ^o .5
26 ^h 24 ^m 6	0	10	0	12	73 ^o .7	+ 7 ^o .5	+ 62 ^o .3	30 ^h 55 ^m 2	12	82	6	44	324 ^o .8	+ 12 ^o .0	+ 10 ^o .2
Means ...	...	...	2	25	71 ^o .69	+ 7 ^o .57	...	31 ^h 18 ^m 7	13	87	7	49	325 ^o .1	+ 11 ^o .7	+ 18 ^o .9
								Feb. 1 ^h 38 ^m 7	0	36	0	23	325 ^o .4	+ 11 ^o .9	+ 34 ^o .9
								Means ...	...	...	9	60	324 ^o .78	+ 11 ^o .68	...
Group 1575. Two small spots on January 20. The group has increased in size by January 21, on which date it consists of a regular spot, <i>a</i> , followed at a little distance by a large irregular group; this group, which consists of a number of small spots, changes rapidly from day to day. Two spots combine to form <i>b</i> on January 24; <i>a</i> has disappeared by January 27, and <i>b</i> has divided into two spots by January 28.								Group 1579. A regular spot, <i>a</i> , followed by a number of scattered small spots. The group appears suddenly near the centre of the sun. The following spots gradually disappear, and <i>a</i> alone remains on January 29.							
Jan. 20 ^h 18 ^m 6	10	72	16	113	18 ^o .8	— 10 ^o .0	— 72 ^o .3	Jan. 25 ^h 54 ^m 2	36	212	19	110	11 ^o .5	+ 4 ^o .5	— 9 ^o .0
21 ^h 18 ^m 3	20	244	18	223	20 ^o .8	— 9 ^o .6	— 57 ^o .3	26 ^h 24 ^m 6	20	182	10	92	13 ^o .8	+ 4 ^o .7	+ 2 ^o .4
22 ^h 21 ^m 4	59	347	39	235	22 ^o .3	— 8 ^o .7	— 42 ^o .2	27 ^h 47 ^m 3	14	208	8	110	12 ^o .9	+ 4 ^o .8	+ 17 ^o .6
23 ^h 36 ^m 6	48	545	27	309	22 ^o .0	— 8 ^o .1	— 27 ^o .3	28 ^h 22 ^m 0	18	138	11	80	14 ^o .4	+ 5 ^o .1	+ 29 ^o .0
24 ^h 22 ^m 5	109	399	57	207	22 ^o .1	— 8 ^o .1	— 15 ^o .8	29 ^h 14 ^m 8	11	70	8	50	16 ^o .7	+ 5 ^o .8	+ 43 ^o .6
25 ^h 54 ^m 2	80	368	41	187	23 ^o .1	— 8 ^o .3	+ 2 ^o .6	30 ^h 55 ^m 2	0	12	0	13	16 ^o .3	+ 5 ^o .7	+ 61 ^o .7
26 ^h 24 ^m 6	64	438	33	222	23 ^o .3	— 8 ^o .9	+ 11 ^o .9	31 ^h 18 ^m 7	0	9	0	14	16 ^o .7	+ 5 ^o .9	+ 70 ^o .5
27 ^h 47 ^m 3	34	215	20	121	22 ^o .9	— 9 ^o .0	+ 27 ^o .6	Means ...	...	...	8	67	14 ^o .61	+ 5 ^o .21	...
28 ^h 22 ^m 0	24	199	15	126	23 ^o .3	— 8 ^o .7	+ 37 ^o .9								
29 ^h 14 ^m 8	18	102	14	79	23 ^o .0	— 8 ^o .1	+ 49 ^o .9								
Means ...	...	...	28	182	22 ^o .16	— 8 ^o .75	...								
Group 1576. Two small spots, <i>a</i> and <i>b</i> , on January 21. Both have moved forward in longitude, and <i>b</i> has also shown a motion in latitude by January 22.								Group 1580. A large regular spot, <i>a</i> , followed by a number of small spots. <i>a</i> has broken up into three parts by February 5. They are, however, still measured together as one on that day. On February 6 only two of the three parts remain, and these are measured separately. The small spots following <i>a</i> have all disappeared by February 2.							
Jan. 21 ^h 18 ^m 3	5	56	3	30	90 ^o .1	+ 10 ^o .6	+ 12 ^o .0	Jan. 25 ^h 54 ^m 2	7	82	21	226	300 ^o .1	— 13 ^o .1	— 80 ^o .4
22 ^h 21 ^m 4	5	24	3	15	91 ^o .1	+ 11 ^o .3	+ 26 ^o .6	26 ^h 24 ^m 6	52	282	78	426	299 ^o .8	— 13 ^o .7	— 71 ^o .6
Means ...	...	...	3	23	90 ^o .60	+ 10 ^o .95	...	27 ^h 47 ^m 3	96	515	82	438	300 ^o .6	— 13 ^o .7	— 54 ^o .7
								28 ^h 22 ^m 0	123	645	85	449	301 ^o .1	— 13 ^o .8	— 44 ^o .3
								29 ^h 14 ^m 8	170	898	102	541	300 ^o .9	— 14 ^o .0	— 32 ^o .2
								30 ^h 55 ^m 2	125	857	65	447	301 ^o .4	— 14 ^o .0	— 13 ^o .2
								31 ^h 18 ^m 7	236	987	120	500	301 ^o .2	— 13 ^o .8	— 5 ^o .0

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1580—continued.							
1885. _d					.	.	.
Feb. 1'387	220	1015	113	522	301'7	-13'7	+11'2
2'457	111	823	62	458	302'3	-13'3	+25'8
3'220	104	685	64	422	302'2	-13'5	+35'8
4'447	54	487	44	403	303'5	-13'3	+53'2
5'500	38	296	47	365	303'2	-13'4	+66'9
6'173	23	125	51	281	305'6	-12'8	+78'2
Means ...	...	...	72	421	301'82	-13'55	...
Group 1581.							
Two small spots. A third is seen on January 28.							
Jan. 27'473	0	59	0	60	54'2	+10'0	+58'9
28'220	0	51	0	89	57'6	+9'2	+72'2
Means ...	...	...	0	75	55'90	+9'60	...
Group 1582.							
Two small spots, <i>a</i> and <i>b</i> . A third spot is seen on January 27, and a fourth on January 29.							
Jan. 27'473	8	68	5	43	32'9	-1'4	+37'6
28'220	21	70	16	52	33'5	-1'5	+48'1
29'148	11	76	12	85	36'3	-1'4	+63'2
Means ...	...	...	11	60	34'23	-1'43	...
Group 1583.							
A small spot.							
Jan. 29'148	7	16	3	8	34'6'7	-2'7	+13'6
Means ...	...	...	3	8	34'6'7	-2'7	...
Group 1584.							
Several small spots irregularly distributed. They are measured together on January 29, in two clusters on January 28 and 30, and in three on January 31. On January 29 a small spot is seen following the group at a little distance.							
Jan. 28'220	7	151	6	136	288'8	-12'8	-56'6
29'148	4	82	3	60	286'1	-13'2	-47'0
30'552	0	51	0	28	290'5	-13'6	-24'1
31'187	2	53	1	28	289'4	-13'6	-16'8
Means ...	...	...	3	63	288'70	-13'30	...
Group 1585.							
A small faint spot.							
1885. _d					.	.	.
Jan. 30'552	0	16	0	13	9'0	-12'1	+54'4
31'187	3	18	3	20	9'4	-12'7	+63'2
Feb. 1'387	0	9	0	21	9'8	-12'8	+79'3
Means ...	...	...	1	18	9'40	-12'53	...
Group 1586.							
A regular spot. A very small spot is seen near it on February 6 and another on February 9.							
Jan. 30'552	16	59	23	86	245'0	+0'7	-69'6
31'187	50	190	53	201	244'7	+0'8	-61'5
Feb. 1'387	76	263	55	188	245'4	+0'9	-45'1
2'457	67	333	39	196	245'7	+1'3	-30'8
3'220	58	369	31	197	246'4	+1'2	-20'0
4'447	62	392	31	199	247'1	+1'6	-3'2
5'500	58	320	30	164	247'1	+1'7	+10'8
6'173	58	312	31	168	247'6	+2'1	+20'2
7'499	33	232	21	149	248'0	+1'9	+37'9
8'153	28	230	21	172	248'3	+2'3	+46'8
9'480	13	130	15	154	248'6	+2'4	+64'5
10'509	7	50	16	116	247'5	+2'3	+77'1
Means ...	...	...	31	166	246'78	+1'60	...
Group 1587.							
A number of small spots irregularly scattered over a considerable area. The group becomes somewhat more scattered, and the spots decrease in area until they have passed the central meridian on February 7. The following part of the group then rapidly increases in size, and becomes more compact, the individual spots coalescing with one another until on February 11 the group consists of three large spots so close together as almost to form a single very large spot. These have broken up by February 13. The preceding part of the group has disappeared by February 11.							
Feb. 1'387	25	169	32	219	222'5	-14'7	-68'0
2'457	39	294	32	248	222'3	-14'7	-54'2
3'220	28	313	19	216	222'5	-14'2	-43'9
4'447	30	335	18	194	221'0	-15'4	-29'3
5'500	68	245	37	130	219'9	-16'0	-16'4
6'173	49	243	26	124	220'4	-16'1	-7'0
7'499	85	646	44	335	216'2	-18'6	+6'1
8'153	176	1142	94	604	215'2	-18'6	+13'7
9'480	214	1019	127	605	214'9	-18'5	+30'8
10'509	176	888	125	619	213'8	-18'7	+43'4
11'191	91	809	75	661	213'7	-18'9	+52'3
12'545	21	200	31	291	214'6	-19'0	+71'1
13'288	0	57	0	200	217'6	-18'6	+83'7
Means ...	...	...	51	342	218'05	-17'08	...

AREAS AND HELIOGRAPHIC POSITIONS OF GROUPS OF SUN SPOTS—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1588.								Group 1592.							
Several small spots arranged in two compact clusters.								A large irregular spot, <i>a</i> , closely followed by a large regular spot, <i>b</i> . <i>a</i> has broken up by February 13, forming two spots, <i>c</i> , a regular spot, and <i>d</i> , an irregular spot with several umbrae. <i>d</i> breaks up yet further, and diminishes in size on the succeeding days, but remaining a compact cluster is measured as a single spot. It has disappeared by February 17. On February 16 and the succeeding days, the group is almost entirely made up of the two large regular spots, <i>b</i> and <i>c</i> . Two or three very small spots are seen in the neighbourhood of the large spots on February 10, 15, and 19.							
1885. <i>a</i>								1885. <i>a</i>							
Feb. 2'457	0	27	0	15	263'9	-23'9	-12'6	Feb. 8'153	0	65	0	479	115'0	-4'4	-86'5
3'220	13	61	7	32	262'7	-23'5	-3'7	9'480	27	325	35	424	116'3	-5'6	-67'8
4'447	3	64	2	34	262'4	-23'2	+12'1	10'509	87	471	75	406	115'6	-6'1	-54'8
Means ...	...	...	3	27	263'00	-23'53	...	11'191	63	652	45	461	116'0	-6'2	-45'4
Group 1589.								12'545	145	856	82	480	116'7	-6'0	-26'9
A large irregular spot surrounded by several small spots. It appears suddenly on the disk, not at the limb. The large spot has broken up by February 5, and the group then consists of a large regular spot, <i>a</i> , closely followed by a number of small spots in a long stream. The following spots gradually diminish in size and number, and on February 11 <i>a</i> remains alone.								13'288	144	771	76	406	116'6	-6'2	-17'3
Feb. 3'220	91	477	51	265	239'9	-4'6	-26'5	14'330	119	837	59	419	116'5	-6'3	-3'6
4'447	138	946	70	480	240'9	-4'7	-9'4	15'158	74	587	37	295	116'6	-6'4	+7'3
5'500	171	964	86	484	240'8	-4'7	+4'5	16'151	70	520	38	278	116'5	-6'4	+20'3
6'173	183	1017	95	526	242'4	-4'6	+15'0	17'371	76	399	47	249	117'1	-5'9	+37'1
7'499	127	854	74	508	242'5	-4'7	+32'4	18'490	20	240	15	189	116'7	-6'3	+51'4
8'153	104	706	70	469	242'5	-4'3	+41'0	19'146	31	179	31	179	117'3	-6'2	+60'6
9'480	54	364	53	355	243'4	-4'2	+59'3	20'216	11	80	18	133	115'9	-6'3	+73'3
10'509	28	239	49	399	243'3	-3'9	+72'9	Means ...	...	...	43	338	116'37	-6'02	...
11'191	10	127	39	487	244'2	-3'7	+82'8	Group 1593.							
Means ...	...	...	65	441	242'21	-4'38	...	A large regular spot, <i>a</i> . A small spot is seen near it on February 12 and another on February 14.							
Group 1590.								Feb. 10'509	4	53	13	174	89'8	+3'9	-80'6
Two small spots on February 7 and 8, but the following spot on February 8 differs considerably in longitude and latitude from the following spot on February 7. Both spots have broken up by February 9, each forming a compact cluster of small spots which are measured together.								11'191	14	146	24	248	89'1	+3'8	-72'3
Feb. 7'499	10	38	6	21	229'2	-21'0	+19'1	12'545	71	391	62	341	89'6	+4'0	-54'0
8'153	12	96	7	56	229'4	-20'1	+27'9	13'288	77	460	55	325	90'5	+3'6	-43'4
9'480	8	140	6	101	229'6	-20'9	+45'5	14'330	65	430	38	249	91'2	+3'2	-28'9
10'509	7	44	6	42	228'1	-20'7	+57'7	15'158	82	505	44	269	92'1	+3'5	-17'2
Means ...	...	...	6	55	229'08	-20'68	...	16'151	71	515	36	262	92'4	+3'3	-3'8
Group 1591.								17'371	96	533	50	279	93'1	+3'7	+13'1
Three very small spots in a compact cluster on February 7. These have disappeared by February 8, and the three small spots, <i>a</i> , <i>b</i> , and <i>c</i> , are seen. <i>a</i> has disappeared by February 9, and another spot, <i>d</i> , has appeared in the place of the original cluster. <i>c</i> has disappeared by February 10.								18'490	51	372	29	203	93'1	+3'7	+27'8
Feb. 7'499	4	16	2	8	185'8	+10'1	-24'3	19'146	73	383	46	243	93'5	+3'8	+36'8
8'153	7	114	4	63	189'4	+13'3	-12'1	20'216	60	279	48	221	92'7	+3'8	+50'1
9'480	6	98	3	51	187'6	+10'4	+3'5	21'433	30	139	39	184	93'7	+3'9	+67'0
10'509	0	63	0	35	187'6	+9'7	+17'2	22'203	15	152	37	374	94'0	+3'9	+77'6
Means ...	...	...	2	39	187'60	+10'88	...	Means ...	...	...	40	259	91'91	+3'70	...
Group 1594.								Group 1594.							
This group undergoes frequent and striking changes. On February 11 it is an ill-defined spot. On February 12 two close clusters of small spots. On February 13 three spots. On February 14 other small spots are also seen. On February 15 two large clusters of spots. On February 16 a long stream of spots following each other so closely as almost to form a single spot. The preceding spot, <i>a</i> , is the largest and best defined. By February 17 the stream has begun to break up, the last spot, <i>b</i> , has become clearly isolated by February 18, the centre spots fade away on the succeeding days, and by February 20 only <i>a</i> and <i>b</i> remain.								Feb. 11'191	2	49	4	91	85'6	-20'6	-75'8
								12'545	18	73	18	71	84'3	-20'9	-59'3
								13'288	14	97	11	75	85'7	-21'7	-48'2

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—continued.																	
Date.		Projected Area of		Area for Group.		Mean	Mean	Longitude	Date.		Projected Area of		Area for Group.		Mean	Mean	Longitude
Greenwich Civil Time.						Longitude of Group.	Latitude of Group.	from Central Meridian.	Greenwich Civil Time.						Longitude of Group.	Latitude of Group.	from Central Meridian.
Umbra.		Whole Spot.		Umbra.		Whole Spot.			Umbra.		Whole Spot.		Umbra.		Whole Spot.		
Group 1594—continued.									Group 1597—continued.								
1885. _a									1885. _a								
Feb. 14 ^h 33 ^m 0									Feb. 16 ^h 15 ^m 1								
15 ^h 15 ^m 8									17 ^h 37 ^m 1								
16 ^h 15 ^m 1									Means ...								
17 ^h 37 ^m 1									...								
18 ^h 49 ^m 0									...								
19 ^h 14 ^m 6									8								
20 ^h 21 ^m 6									62								
21 ^h 43 ^m 3									152 ^h 52								
22 ^h 20 ^m 3									-15 ^h 34								
Means ...									...
...									...								
34									262								
87 ^h 88									-21 ^h 50								
...									...								
Group 1595.									Group 1598.								
A stream of small spots. The spots change in number and area from day to day.									The group consists of two small spots on each day on which it is seen, but it is not clear that the spots are the same on each day.								
Feb. 12 ^h 54 ^m 5									Feb. 13 ^h 28 ^m 8								
13 ^h 28 ^m 8									14 ^h 33 ^m 0								
14 ^h 33 ^m 0									15 ^h 15 ^m 8								
15 ^h 15 ^m 8									Means ...								
16 ^h 15 ^m 1									...								
17 ^h 37 ^m 1									...								
Means ...									...
...									...								
3									1								
30									25								
97 ^h 05									84 ^h 13								
-15 ^h 95									+ 5 ^h 00								
...									...								
Group 1596.									Group 1599.								
A regular spot, <i>a</i> , followed by a few small scattered spots.									Two small spots, <i>a</i> and <i>b</i> . <i>b</i> has disappeared by February 17.								
Feb. 12 ^h 54 ^m 5									Feb. 15 ^h 15 ^m 8								
13 ^h 28 ^m 8									16 ^h 15 ^m 1								
14 ^h 33 ^m 0									17 ^h 37 ^m 1								
15 ^h 15 ^m 8									Means ...								
16 ^h 15 ^m 1									...								
17 ^h 37 ^m 1									...								
18 ^h 49 ^m 0									3								
19 ^h 14 ^m 6									14								
20 ^h 21 ^m 6									137 ^h 53								
21 ^h 43 ^m 3									-15 ^h 60								
22 ^h 20 ^m 3									...								
23 ^h 51 ^m 1									...								
Means ...									...
...									...								
21									3								
136									14								
78 ^h 17									137 ^h 53								
+ 8 ^h 47									-15 ^h 60								
...									...								
Group 1597.									Group 1600.								
A small spot, <i>a</i> . Other small spots are seen near it on February 14 and 15, and form with it an irregular scattered group.									Three very small spots. Two of these are measured together on February 15. One member of this pair has disappeared by February 16, and another spot has broken out.								
Feb. 13 ^h 28 ^m 8									Feb. 15 ^h 15 ^m 8								
14 ^h 33 ^m 0									16 ^h 15 ^m 1								
15 ^h 15 ^m 8									Means ...								
...									...								
...									...								
14									0								
63									9								
76									11								
152 ^h 4									12								
152 ^h 1									10								
150 ^h 9									39 ^h 9								
-15 ^h 4									41 ^h 4								
-15 ^h 6									- 3 ^h 8								
-15 ^h 5									- 2 ^h 9								
+18 ^h 5									-69 ^h 4								
+32 ^h 0									-54 ^h 8								
+41 ^h 6									...								
...									...								
...									...								
17									11								
108									40 ^h 65								
72 ^h 00									- 3 ^h 35								
-10 ^h 04									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...									...								
...																	

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1602.							
A very small spot on February 16. A close pair of very small spots on February 17.							
1885. _a Feb. 16 ¹⁵ 1 17 ³⁷ 1	○	3 8	○	3 6	33 ⁶ 33 ³	— 2 ⁶ — 3 ²	— 62 ⁶ — 46 ⁷
Means ...	...	...	○	5	33 ⁴⁵	— 2 ⁹⁰	...
Group 1603.							
A small spot.							
Feb. 18 ⁴⁹ 0	○	12	○	8	100 ³	+ 10 ⁸	+ 35 ⁰
Means ...	...	...	○	8	100 ³	+ 10 ⁸	...
Group 1604.							
Two small spots, <i>a</i> and <i>b</i> , on February 19. Only <i>a</i> is seen on February 20.							
Feb. 19 ¹⁴ 6 20 ²¹ 6	3 ○	57 24	2 ○	47 31	107 ⁷ 109 ¹	+ 6 ⁰ + 5 ⁰	+ 51 ⁰ + 66 ⁵
Means ...	...	...	1	39	108 ⁴⁰	+ 5 ⁵⁰	...
Group 1605.							
A very small spot.							
Feb. 20 ²¹ 6	○	5	○	5	102 ⁶	— 16 ⁹	+ 60 ⁰
Means ...	...	...	○	5	102 ⁶	— 16 ⁹	...
Group 1606.							
A small spot on February 20; five very small spots on February 21; four small spots, three of which are measured together, on February 22. Two of these four spots, <i>a</i> and <i>b</i> , have greatly increased in size by February 23. A few very small spots, measured together, are seen between them on that day. The group undergoes yet further changes on the succeeding days.							
Feb. 20 ²¹ 6 21 ⁴³ 3 22 ²⁰ 3 23 ⁵¹ 1 24 ⁴⁵ 1 25 ¹⁶ 7 26 ¹⁵ 9	7 2 40 53 51 20 11	24 42 188 446 447 319 42	4 1 20 30 33 15 12	12 21 96 249 283 237 44	27 ² 26 ¹ 25 ⁷ 25 ⁵ 25 ⁵ 25 ⁶ 26 ³	— 9 ⁹ — 10 ⁵ — 10 ¹ — 10 ⁷ — 10 ⁶ — 10 ⁹ — 11 ⁴	— 15 ⁴ — 0 ⁶ + 9 ³ + 26 ² + 38 ⁶ + 48 ² + 62 ⁰
Means ...	...	...	16	135	25 ⁹⁹	— 10 ⁵⁹	...
Group 1607.							
A spot, <i>a</i> , of very irregular shape on February 20, with two small spots near it. These latter have disappeared by February 21. <i>a</i> has broken up into a number of small spots by February 23. Only one spot remains on February 24.							
1885. _a Feb. 20 ²¹ 6 21 ⁴³ 3 22 ²⁰ 3 23 ⁵¹ 1 24 ⁴⁵ 1	5 29 22 9 2	65 195 318 93 10	4 17 12 4 1	47 113 169 48 5	356 ⁸ 357 ² 357 ⁴ 358 ³ 357 ³	— 0 ² + 0 ³ — 0 ⁵ — 0 ¹ + 2 ⁰	— 45 ⁸ — 29 ⁵ — 19 ⁰ — 1 ⁰ + 10 ⁴
Means ...	...	...	8	76	357 ⁴⁰	+ 0 ³⁰	...
Group 1608.							
A single spot, <i>a</i> , on February 20. A second spot, <i>b</i> , has appeared by February 21, and has disappeared by February 25.							
Feb. 20 ²¹ 6 21 ⁴³ 3 22 ²⁰ 3 23 ⁵¹ 1 24 ⁴⁵ 1 25 ¹⁶ 7	9 14 6 10 4 0	46 57 87 34 36 15	11 11 4 5 2 0	56 43 57 19 18 8	336 ³ 337 ⁰ 335 ⁶ 336 ⁸ 338 ¹ 339 ¹	— 9 ⁶ — 9 ⁴ — 9 ⁵ — 9 ⁵ — 9 ² — 9 ⁵	— 66 ³ — 49 ⁷ — 40 ⁸ — 22 ⁵ — 8 ⁸ + 1 ⁷
Means ...	...	...	6	34	337 ¹⁵	— 9 ⁴⁵	...
Group 1609.							
A small spot, <i>a</i> , on February 23. Two other small spots, <i>b</i> and <i>c</i> , have appeared by February 24.							
Feb. 23 ⁵¹ 1 24 ⁴⁵ 1 25 ¹⁶ 7 26 ¹⁵ 9	0 5 4 0	20 30 24 14	0 4 3 0	23 25 16 8	294 ⁴ 293 ⁸ 295 ³ 295 ⁰	— 5 ⁸ — 6 ⁰ — 6 ⁰ — 6 ¹	— 64 ⁹ — 53 ¹ — 42 ¹ — 29 ³
Means ...	...	...	2	18	294 ⁶³	— 5 ⁹⁸	...
Group 1610.							
A small spot. A second is seen near it on February 28.							
Feb. 24 ⁴⁵ 1 25 ¹⁶ 7 26 ¹⁵ 9 27 ²⁰ 7 28 ²¹ 6	0 0 2 0 3	15 20 20 5 22	0 0 2 0 2	23 21 16 3 13	278 ⁸ 278 ⁸ 279 ⁴ 279 ² 276 ⁸	+ 16 ⁵ + 15 ⁹ + 16 ⁰ + 15 ⁹ + 16 ¹	— 68 ¹ — 58 ⁶ — 44 ⁹ — 31 ³ — 20 ⁴
Means ...	...	...	1	15	278 ⁶⁰	+ 16 ⁰⁸	...
Group 1611.							
A small spot.							
Feb. 25 ¹⁶ 7	0	37	0	23	14 ⁶	— 0 ²	+ 37 ²
Means ...	...	...	0	23	14 ⁶	— 0 ²	...

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—continued.

Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Umbra.	Whole Spot.	Umbra.	Whole Spot.					
Group 1612.								
A large regular spot, <i>a</i> , on February 26. On February 27 several small spots are seen <i>s.f.</i> of <i>a</i> . These increase in number and size on the succeeding days, and approach <i>a</i> . On March 3 and the succeeding days some small spots are seen <i>n.p.</i> of <i>a</i> . <i>a</i> diminishes in size from day to day, but the preceding spots of the stream <i>s.f.</i> of <i>a</i> have coalesced by March 5 to form a large regular spot <i>b</i> .								
1885. ^a								
Feb. 26.159	20	119	53	310	245.1	— 2.9	—79.2	
27.207	50	260	64	327	243.8	— 3.5	—66.7	
28.216	66	441	54	365	244.2	— 4.2	—53.0	
Mar. 1.442	61	559	39	352	243.9	— 3.7	—37.2	
2.581	41	451	22	244	245.1	— 3.6	—20.9	
3.161	86	580	43	300	244.8	— 3.6	—13.6	
4.456	89	628	45	318	246.0	— 3.6	+ 4.7	
5.573	79	1047	43	554	246.4	— 3.5	+19.7	
6.192	109	784	62	447	247.0	— 3.6	+28.5	
7.493	70	499	51	361	248.0	— 3.1	+46.6	
8.175	60	417	53	374	248.8	— 3.0	+56.4	
9.482	13	122	22	202	247.8	— 3.1	+72.6	
Means ...	...	...	46	346	245.91	— 3.45	...	
Group 1613.								
A small spot, <i>a</i> , on February 27. A second <i>b</i> is seen on February 28. <i>a</i> has disappeared by March 1.								
Feb. 27.207	0	8	1	21	234.4	+16.3	—76.1	
28.216	9	50	10	58	236.1	+15.3	—61.1	
Mar. 1.442	13	77	10	60	236.2	+15.7	—44.9	
2.581	6	81	4	51	236.9	+15.6	—29.1	
3.161	9	29	5	17	237.4	+15.3	—21.0	
4.456	0	26	0	14	238.8	+15.6	— 2.5	
Means ...	...	...	5	37	236.63	+15.63	...	
Group 1614.								
A small spot on February 27. This has greatly increased in size by February 28, another spot of about the same area has appeared following it, and a small spot north of it. The group rapidly increases in size on the succeeding days, and forms two irregular streams of spots which together enclose an immense area. The leading spot, <i>a</i> , of the northern stream has become a regular spot by March 2, and increases in size on the following days. The preceding spots of the southern stream have coalesced to form a large irregular spot, <i>b</i> , by March 5. This spot has, however, divided into two spots by March 8, and re-combined by March 9. The two streams have become intermingled by March 6, and the entire group undergoes continual changes.								
Feb. 27.207	3	10	8	25	229.8	—18.8	—80.7	
28.216	29	232	36	283	230.5	—20.7	—66.7	
Mar. 1.442	64	542	49	419	231.2	—16.8	—49.9	
2.581	90	1015	55	626	231.5	—16.5	—34.5	
3.161	180	1099	101	626	231.7	—16.7	—26.7	
4.456	240	1608	125	831	232.2	—16.8	— 9.1	
5.573	118	1259	61	646	232.8	—17.0	+ 6.1	
Group 1614—continued.								
1885. ^a								
Mar. 6.192	205	1465	109	766	232.3	—21.3	+13.8	
7.493	179	1443	107	850	232.4	—17.5	+31.0	
8.175	116	1623	77	1078	232.9	—18.0	+40.5	
9.482	98	771	89	714	233.0	—18.2	+57.8	
10.465	18	353	31	522	233.8	—18.0	+71.6	
11.493	3	59	7	126	226.7	—20.8	+78.1	
Means ...	...	...	66	578	231.60	—18.24	...	
Group 1615.								
A small spot. A second is seen near it on March 5, and is measured with it.								
Feb. 28.216	0	15	0	23	230.1	+17.5	—67.1	
Mar. 1.442	18	44	16	40	229.2	+18.4	—51.9	
2.581	10	53	7	39	227.9	+19.5	—38.1	
3.161	14	41	9	27	227.4	+19.6	—31.0	
4.456	0	28	0	16	227.5	+19.7	—13.8	
5.573	0	26	0	14	230.5	+18.5	+ 3.8	
Means ...	...	...	5	27	228.77	+18.87	...	
Group 1616.								
A small spot.								
Mar. 2.581	0	8	0	5	251.8	+17.8	—14.2	
Means ...	...	...	0	5	251.8	+17.8	...	
Group 1617.								
A large spot, with a small companion appearing suddenly near the centre of the disk. The large spot has begun to break up by March 5, and other spots have appeared near it; but as the group is still very compact, it is measured together on that day. It has become more scattered by March 6, and diminishes in size after that day.								
Mar. 4.456	67	351	35	184	257.2	—14.1	+15.9	
5.573	20	709	12	414	257.3	—13.6	+30.6	
6.192	92	732	60	474	258.3	—13.5	+39.8	
7.493	30	353	27	318	258.7	—13.4	+57.3	
8.175	4	183	6	228	259.7	—13.6	+67.3	
Means ...	...	...	28	324	258.24	—13.64	...	

AREAS AND HELIOGRAPHIC POSITIONS OF GROUPS OF SUN SPOTS—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1618.							
A large regular spot, <i>a</i> , with occasionally a small spot or two near it. The umbra of <i>a</i> appears abnormally large on March 6 and 8; this is probably due to the manner in which the photograph has been developed.							
1885. <i>a</i>							
Mar. 4'456	6	103	16	283	159'3	-15'9	-82'0
5'573	28	199	34	269	159'7	-16'0	-67'0
6'192	62	232	60	225	158'8	-15'9	-59'7
7'493	58	381	39	256	159'4	-15'7	-42'0
8'175	142	419	85	250	159'5	-15'8	-32'9
9'482	60	456	31	237	159'6	-15'3	-15'6
10'465	78	522	39	262	159'6	-15'2	-2'6
11'493	65	427	34	221	160'0	-15'2	+11'4
12'412	56	331	31	183	160'4	-14'7	+23'9
13'488	55	250	35	162	160'7	-15'0	+38'3
14'333	33	228	25	173	160'3	-14'8	+49'1
15'482	30	174	33	200	159'6	-14'6	+63'6
16'282	20	130	35	223	159'8	-14'6	+74'3
Means	...	...	38	226	159'75	-15'28	...
Group 1619.							
A few very small faint spots following Group 1612. They form two clusters on March 5 and 7, but only one on March 6 and 9. No trace of the group can be detected on March 8.							
Mar. 5'573	0	31	0	16	235'1	-4'9	+8'4
6'192	0	8	0	4	237'8	-5'1	+19'3
7'493	0	18	0	11	235'3	-5'5	+33'9
8'175	0	0	0	0	...	...	...
9'482	0	18	0	17	234'5	-6'0	+59'3
Means	...	...	0	10	235'68	-5'38	...
Group 1620.							
A small spot on March 6. Three small spots on March 7 and 8; two of these have disappeared by March 9.							
Mar. 6'192	2	14	1	10	176'4	-18'3	-42'1
7'493	9	43	5	25	175'2	-19'1	-26'2
8'175	2	26	1	14	174'4	-19'0	-18'0
9'482	7	22	4	11	171'7	-19'1	-3'5
10'465	0	14	0	7	171'3	-19'8	+9'1
Means	...	...	2	13	173'80	-19'06	...
Group 1621.							
A very small spot on March 10. Three small spots on March 11, two on March 12, one on March 13 and 14.							
Mar. 10'465	0	12	0	6	119'2	-18'9	-43'0
11'493	0	91	0	54	119'7	-18'3	-28'9
12'412	0	28	0	15	120'6	-19'0	-15'9
Group 1621—continued.							
1885. <i>a</i>							
Mar. 13'488	3	13	2	7	121'5	-21'5	-0'9
14'333	4	13	2	7	122'5	-21'4	+11'3
Means	...	...	1	18	120'70	-19'82	...
Group 1622.							
A large regular spot, <i>a</i> . It gradually lengthens out, and has divided into two spots, <i>b</i> and <i>c</i> , by March 15. <i>c</i> diminishes in size on the succeeding days, and has broken up into a number of small spots by March 18. A few very small spots are seen near the principal spots occasionally.							
Mar. 10'465	19	116	44	277	85'1	+5'1	-77'1
11'493	28	292	34	348	84'8	+5'9	-63'8
12'412	75	388	63	326	84'7	+5'2	-51'8
13'488	112	538	74	353	84'4	+5'1	-38'0
14'333	80	539	46	309	84'7	+5'2	-26'5
15'482	71	663	37	345	86'1	+5'4	-9'9
16'282	52	537	26	273	86'1	+5'1	+0'6
17'444	70	416	38	222	86'0	+5'6	+15'9
18'452	39	288	23	172	86'9	+5'3	+30'0
19'431	22	178	15	127	87'4	+5'0	+43'4
20'579	11	70	11	70	87'7	+4'8	+58'8
21'173	27	76	36	102	88'5	+4'7	+67'5
22'205	2	21	10	91	90'2	+4'7	+82'8
Means	...	...	35	232	86'35	+5'16	...
Group 1623.							
A few very small spots irregularly arranged. The group is not seen on the photographs taken on March 14, 15, and 16.							
Mar. 11'493	1	22	2	25	83'8	-16'0	-64'8
12'412	0	29	0	24	84'1	-15'9	-52'4
13'488	0	16	0	10	83'4	-15'7	-39'0
14'333	0	0	0	0	...	...	...
15'482	0	0	0	0	...	...	...
16'282	0	0	0	0	...	...	...
17'444	0	11	0	6	84'4	-17'2	+14'3
Means	...	...	0	9	83'93	-16'20	...
Group 1624.							
A regular spot, <i>a</i> , preceded by several smaller spots. <i>a</i> has broken up by March 17. The group is very unstable, the spots composing it changing from day to day.							
Mar. 11'493	0	102	0	251	73'2	+9'7	-75'4
12'412	19	210	24	268	71'6	+9'2	-64'9
13'488	37	254	31	216	71'4	+9'6	-51'0
14'333	21	205	15	142	71'6	+9'7	-39'6
15'482	28	139	16	79	72'8	+9'3	-23'2
16'282	10	88	6	48	71'7	+9'4	-13'8

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

AREAS and HELIOGRAPHIC POSITIONS of SUN SPOTS—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1624—continued.									Group 1629. A small regular spot.								
1885. _d									1885. _d								
Mar. 17 ⁴⁴⁴	18	101	9	52	74 ³	+ 9 ¹	+ 4 ²		Mar. 24 ⁴²⁷	2	35	1	20	311 ⁴	— 5 ⁵	— 26 ⁷	
18 ⁴⁵²	0	79	0	43	74 ¹	+ 9 ³	+ 17 ²		25 ⁴³⁰	6	30	3	15	312 ⁵	— 6 ¹	— 12 ⁴	
19 ⁴³¹	0	26	0	16	74 ²	+ 8 ⁷	+ 30 ²		26 ⁴⁷³	4	29	2	14	313 ⁰	— 6 ⁰	+ 1 ⁸	
Means ...	...	...	11	124	72 ⁷⁷	+ 9 ³³	...		27 ⁴⁸³	3	12	2	6	313 ²	— 5 ⁶	+ 15 ³	
									28 ⁵⁴⁷	0	7	0	4	314 ³	— 5 ⁷	+ 30 ⁵	
									Means ...	...	...	2	12	312 ⁸⁸	— 5 ⁷⁸	...	
Group 1625. A small spot, <i>a</i> , seen only on March 14. Another small spot, <i>b</i> , is seen on March 16, and another, <i>c</i> , on March 18 and 19. No spot belonging to this group is seen on March 17.									Group 1630. An irregular straggling group of small spots.								
Mar. 14 ³³³	0	13	0	16	44 ³	— 12 ²	— 66 ⁹		Mar. 25 ⁴³⁰	4	34	2	19	296 ³	— 12 ⁰	— 28 ⁶	
15 ⁴⁸²	0	0	0	0	...	...	...		26 ⁴⁷³	7	135	4	70	296 ⁸	— 12 ⁶	— 14 ⁴	
16 ²⁸²	0	11	0	6	44 ¹	— 12 ⁵	— 41 ⁴		27 ⁴⁸³	18	83	10	42	297 ²	— 12 ⁵	— 0 ⁷	
17 ⁴⁴⁴	0	0	0	0	...	...	...		28 ⁵⁴⁷	4	82	2	41	296 ²	— 12 ⁸	+ 12 ⁴	
18 ⁴⁵²	3	17	2	9	47 ⁴	— 12 ³	— 9 ⁵		Means ...	...	...	5	43	296 ⁶³	— 12 ⁴⁸	...	
19 ⁴³¹	0	20	0	10	48 ⁴	— 12 ⁶	+ 4 ⁴										
Means ...	...	...	0	7	46 ⁰⁵	— 12 ⁴⁰	...		Group 1631. A large regular spot. It has broken up in two portions by April 4.								
Group 1626. A small spot. The spot seen on March 16 is probably not the same as that seen on March 15.									Mar. 25 ⁴³⁰	0	35	0	169	238 ⁸	— 20 ²	— 86 ¹	
Mar. 15 ⁴⁸²	0	10	0	5	108 ²	— 17 ²	+ 12 ²		26 ⁴⁷³	16	154	26	246	238 ²	— 20 ¹	— 73 ⁰	
16 ²⁸²	3	19	2	11	109 ⁴	— 15 ⁴	+ 23 ⁹		27 ⁴⁸³	32	269	32	265	237 ⁹	— 20 ¹	— 60 ⁰	
Means ...	...	...	1	8	108 ⁸⁰	— 16 ³⁰	...		28 ⁵⁴⁷	44	366	32	271	237 ¹	— 19 ⁸	— 46 ⁷	
Group 1627. Two small spots.									29 ²⁴²	64	380	41	243	237 ⁰	— 19 ⁸	— 37 ⁶	
Mar. 19 ⁴³¹	0	20	0	10	28 ⁰	— 15 ³	— 16 ⁰		30 ⁴⁴⁶	50	381	28	210	236 ⁹	— 19 ⁹	— 21 ⁷	
20 ⁵⁷⁹	0	56	0	28	28 ⁰	— 15 ⁵	— 0 ⁹		31 ⁴³⁷	46	392	24	205	236 ⁷	— 20 ⁰	— 8 ⁹	
Means ...	...	...	0	19	28 ⁰⁰	— 15 ⁴⁰	...		Apr. 1 ⁴²⁹	65	360	34	186	236 ⁶	— 20 ¹	+ 4 ¹	
Group 1628. A small spot.									2 ⁴³⁴	7	211	4	114	236 ⁴	— 20 ⁰	+ 17 ²	
Mar. 19 ⁴³¹	0	16	0	22	336 ⁵	+ 4 ³	— 67 ⁵		3 ⁴¹³	17	224	10	132	236 ⁰	— 20 ²	+ 29 ⁷	
Means ...	...	...	0	22	336 ⁵	+ 4 ³	...		4 ⁴²³	13	148	9	103	235 ⁸	— 20 ²	+ 42 ⁸	
									5 ⁵¹⁴	0	69	0	63	235 ⁸	— 19 ²	+ 57 ²	
									6 ¹⁶⁶	8	101	10	124	236 ⁸	— 19 ⁵	+ 66 ⁸	
									Means ...	...	...	19	179	236 ⁹²	— 19 ⁹³	...	
									Group 1632. A scattered group composed of a number of small spots. The preceding spots of the group have united to form one regular spot, <i>a</i> , and the following spots to form another, <i>b</i> , by April 2. A third regular spot, <i>c</i> , has also formed between these two by April 4, but it is measured with some smaller spots on April 5. <i>b</i> , which has greatly diminished in size, is measured with some small spots on April 6.								
									Mar. 26 ⁴⁷³	0	72	0	146	234 ¹	— 16 ⁵	— 77 ¹	
									27 ⁴⁸³	5	211	5	244	232 ⁷	— 16 ¹	— 65 ²	
									28 ⁵⁴⁷	56	364	47	302	230 ⁶	— 15 ⁹	— 53 ²	
									29 ²⁴²	55	482	39	337	229 ⁷	— 16 ¹	— 44 ⁹	
									30 ⁴⁴⁶	27	367	15	204	234 ¹	— 15 ⁸	— 24 ⁵	
									31 ⁴³⁷	93	627	49	323	236 ⁷	— 16 ⁰	— 8 ⁹	

AREAS and HELIOGRAPHIC POSITIONS of GROUPS of SUN SPOTS—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1632—continued.							
1885. _a Apr. 1'429	104	553	53	283	238'1	-16'1	+5'6
2'434	51	747	28	405	239'1	-15'6	+19'9
3'413	61	525	37	322	241'1	-16'0	+34'8
4'423	53	528	41	404	242'1	-16'1	+49'1
5'514	44	484	48	525	242'0	-15'9	+63'4
6'166	89	249	159	422	243'9	-16'7	+73'9
Means ...	...	...	43	326	237'02	-16'07	...
Group 1633. Two small spots.							
Mar. 28'547	3	23	2	14	247'4	-16'5	-36'4
Means ...	...	...	2	14	247'4	-16'5	...
Group 1634. A small spot.							
Mar. 28'547	6	25	4	17	241'3	-14'0	-42'5
29'242	0	12	0	7	242'1	-14'5	-32'5
Means ...	...	...	2	12	241'70	-14'25	...
Group 1635. A small spot.							
Mar. 28'547	0	3	0	4	214'3	+9'3	-69'5
Means ...	...	...	0	4	214'3	+9'3	...
Group 1636. A regular group.							
Apr. 1'429	6	51	10	86	158'8	-13'4	-73'7
2'434	10	85	10	85	158'7	-13'4	-60'5
3'413	10	119	7	87	158'9	-13'3	-47'4
4'423	28	135	17	82	158'6	-13'5	-34'4
5'514	22	168	12	90	158'5	-13'8	-20'1
6'166	52	165	27	86	158'4	-14'1	-11'6
7'428	30	122	15	62	158'8	-13'8	+5'4
8'157	24	128	13	67	158'7	-14'1	+14'9
9'183	9	57	5	33	158'3	-13'9	+28'1
10'133	7	21	5	14	158'3	-13'8	+40'7
11'492	0	5	0	5	157'9	-13'1	+58'2
Means ...	...	...	11	63	158'54	-13'65	...
Group 1637. A few small scattered spots, which change from day to day. The group is not seen on April 5.							
1885. _a Apr. 2'434	0	26	0	13	221'5	-6'4	+2'3
3'413	0	18	0	9	224'3	-6'3	+18'0
4'423	0	6	0	3	221'5	-6'6	+28'5
5'514	0	0	0	0	...	...	...
6'166	4	14	4	13	226'1	-6'3	+56'1
Means ...	...	...	1	8	223'35	-6'40	...
Group 1638. A large group of very irregular form, which undergoes constant changes. It has become a long straight stream by April 9, and has divided into two groups by April 12, the first spot in each group being large and regular.							
Apr. 4'423	18	274	32	483	121'3	+11'4	-71'7
5'514	63	541	61	534	121'3	+11'4	-57'3
6'166	111	916	90	749	120'7	+11'7	-49'3
7'428	156	1316	95	827	121'3	+11'9	-32'1
8'157	177	1841	99	1055	120'8	+12'1	-23'0
9'183	237	2117	126	1126	121'1	+12'4	-9'1
10'133	303	2063	160	1089	122'4	+12'3	+4'8
11'492	206	1491	119	860	122'4	+13'0	+22'7
12'164	113	1293	72	810	123'0	+12'5	+32'1
13'251	72	806	57	643	124'4	+12'6	+47'9
14'483	20	338	27	437	125'1	+12'8	+64'9
15'476	6	79	13	154	120'6	+13'6	+73'5
Means ...	...	...	79	731	122'03	+12'31	...
Group 1639. A large group of very irregular form, which undergoes constant changes. The preceding spots have coalesced by April 11 to form a large spot, <i>a</i> , which has divided into two spots, <i>b</i> and <i>c</i> , by April 15.							
Apr. 7'428	0	39	0	71	80'3	+8'9	-73'1
8'157	9	136	9	153	81'4	+8'0	-62'4
9'183	25	439	19	338	82'9	+7'8	-47'3
10'133	117	932	72	583	82'8	+7'4	-34'8
11'492	100	989	53	530	83'2	+7'4	-16'5
12'164	113	1097	59	567	84'0	+7'1	-6'9
13'251	132	1322	67	682	83'5	+7'9	+7'0
14'483	75	732	42	415	85'4	+7'2	+25'2
15'476	64	533	43	352	86'2	+7'1	+39'1
16'237	59	433	47	343	86'2	+7'1	+49'2
17'437	19	218	24	270	85'9	+7'4	+64'7
18'406	5	73	14	185	86'3	+7'1	+77'9
Means ...	...	...	37	374	84'01	+7'53	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.															
Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1640. Two small spots measured together.								Group 1645. A regular spot, <i>a</i> , followed, April 21-28, by a few small spots. A small spot has separated from <i>a</i> by April 25. Two very small spots are seen preceding <i>a</i> on April 28.							
1885. _d Apr. 10 ^h 133	3	23	2	16	162.6	-10.6	+45.0	1885. _d Apr. 19 ^h 512	0	38	0	137	270.9	-15.5	-83.0
Means ...	...	...	2	16	162.6	-10.6	...	20 ^h 442	10	94	15	141	270.6	-15.5	-70.9
Group 1641. Two small spots, <i>a</i> and <i>b</i> . <i>b</i> has disappeared by April 13.								21 ^h 391	17	185	16	178	270.4	-15.9	-58.6
Apr. 10 ^h 133	0	43	0	60	47.5	-9.5	-70.1	22 ^h 420	31	251	22	177	271.4	-15.9	-43.9
11 ^h 492	0	35	0	28	47.4	-9.6	-52.3	23 ^h 444	23	222	14	130	271.7	-16.1	-30.1
12 ^h 164	0	25	0	17	47.9	-9.7	-43.0	24 ^h 168	23	218	12	118	271.8	-16.0	-20.5
13 ^h 251	2	25	1	14	50.2	-8.9	-26.3	25 ^h 395	37	272	19	139	272.1	-16.1	-3.9
Means ...	...	...	0	30	48.25	-9.43	...	26 ^h 485	33	254	17	132	272.7	-16.1	+11.0
Group 1642. Two small spots, <i>a</i> and <i>b</i> . They have moved away from each other by April 13.								27 ^h 408	15	200	9	111	273.0	-16.0	+23.5
Apr. 12 ^h 164	3	30	2	24	140.5	+10.2	+49.6	28 ^h 405	16	158	10	100	272.9	-16.0	+36.6
13 ^h 251	0	13	0	15	141.1	+10.3	+64.6	29 ^h 293	15	100	11	77	273.1	-16.5	+48.6
Means ...	...	...	1	20	140.80	+10.25	...	30 ^h 424	9	62	10	68	272.9	-16.3	+63.3
Group 1643. A regular spot, <i>a</i> , followed by a number of small spots. These have all disappeared by April 24.								May 1 ^h 421	7	28	13	54	271.9	-16.6	+75.5
Apr. 16 ^h 237	13	91	25	179	321.4	-4.8	-75.6	Means ...	...	...	13	120	271.95	-16.04	...
17 ^h 437	21	239	21	245	320.5	-4.5	-60.7	Group 1646. A number of small spots suddenly appearing near the centre of the Sun. The last spot of the group has attained a considerable size by April 23, but has decreased again by April 24, and broken up into a number of small spots by April 25.							
18 ^h 406	30	328	22	246	320.7	-4.3	-47.7	Apr. 21 ^h 391	8	51	4	27	313.7	-11.8	-15.3
19 ^h 512	40	327	24	194	321.3	-4.6	-32.6	22 ^h 420	21	174	10	88	315.3	-11.8	0.0
20 ^h 442	49	349	26	187	321.7	-4.5	-19.8	23 ^h 444	30	213	16	109	314.0	-11.6	+12.2
21 ^h 391	53	341	27	173	322.0	-4.6	-7.0	24 ^h 168	14	119	8	64	313.8	-11.6	+21.5
22 ^h 420	33	308	16	157	322.8	-4.7	+7.5	25 ^h 395	11	91	8	60	315.5	-12.0	+39.5
23 ^h 444	33	294	18	157	322.8	-4.6	+21.0	Means ...	...	...	9	70	314.46	-11.76	...
24 ^h 168	13	220	8	128	323.4	-4.7	+31.1	Group 1647. A large regular spot, <i>a</i> , occasionally accompanied by small spots.							
25 ^h 395	21	153	15	113	323.6	-4.5	+47.6	Apr. 21 ^h 391	0	12	0	63	243.0	-16.8	-86.0
26 ^h 485	13	109	14	116	323.8	-4.4	+62.1	22 ^h 420	16	117	26	183	243.3	-16.3	-72.0
27 ^h 408	4	51	7	89	323.0	-4.3	+73.5	23 ^h 444	21	195	20	188	242.8	-16.3	-59.0
Means ...	...	...	19	165	322.25	-4.54	...	24 ^h 168	33	232	25	181	242.9	-16.1	-49.4
Group 1644. A cluster of very small spots, which are measured together.								25 ^h 395	47	268	29	163	242.6	-16.3	-33.4
Apr. 19 ^h 512	0	11	0	6	335.7	+7.8	-18.2	26 ^h 485	55	312	30	169	243.0	-16.3	-18.7
Means ...	...	...	0	6	335.7	+7.8	...	27 ^h 408	55	318	29	164	243.1	-16.3	-6.4
Group 1645.								28 ^h 405	44	319	23	164	243.0	-16.4	+6.7
Group 1646.								29 ^h 293	28	282	15	152	243.0	-16.5	+18.5
Group 1647.								30 ^h 424	20	226	12	138	243.4	-16.4	+33.8
Group 1648.								May 1 ^h 421	13	148	10	109	243.4	-16.5	+47.0
Group 1649.								2 ^h 435	5	69	5	70	243.2	-16.0	+60.2
Group 1650.								3 ^h 585	0	19	0	34	242.6	-16.4	+74.7
Group 1651.								Means ...	...	...	17	137	243.02	-16.35	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1648.							
A very small spot.							
1885. _a Apr. 25.395	o	10	o	6	242.9	-21.7	-33.1
Means ...	...	...	o	6	242.9	-21.7	...
Group 1649.							
A very small spot on April 26. A compact cluster of very small faint spots on April 27.							
Apr. 26.485	o	12	o	6	251.7	-16.7	-10.0
27.408	o	6	o	3	252.3	-16.8	+2.8
Means ...	...	...	o	5	252.00	-16.75	...
Group 1650.							
A compact cluster of small spots on April 26. The group forms a long stream of spots on April 27 and 28; the central spots then disappear, and the group forms two compact clusters on April 29, of which the preceding one rapidly diminishes in size on the succeeding days.							
Apr. 26.485	11	96	6	52	248.1	+14.7	-13.6
27.408	24	142	12	76	248.1	+14.5	-1.4
28.405	57	235	31	128	247.5	+14.9	+11.2
29.293	22	238	13	138	249.0	+14.5	+24.5
30.424	o	200	o	135	248.0	+14.7	+38.4
May 1.421	11	170	9	139	245.7	+15.1	+49.3
2.435	o	34	o	38	244.1	+15.7	+61.1
Means ...	...	...	10	101	247.21	+14.87	...
Group 1651.							
Two very small faint spots measured together on April 27, but separately on April 29. The group has increased in size by April 30, when it forms a compact cluster composed of four spots. The first and second are measured separately; the last two are taken together.							
Apr. 27.408	o	22	o	12	278.8	-10.0	+29.3
28.405	o	9	o	6	280.2	-10.5	+43.9
29.293	2	28	1	24	279.8	-10.4	+55.3
30.424	o	101	o	143	279.4	-10.3	+69.8
Means ...	...	...	o	46	279.55	-10.30	...
Group 1652.							
Three very small spots measured together on April 27. The group has greatly increased in size by April 28, and forms a short stream of spots, the last of which, α , is the largest. Only α and one very small spot remain by April 29.							
1885. _a Apr. 27.408	4	15	2	8	274.1	-5.5	+24.6
28.405	13	106	9	67	272.8	-5.0	+36.5
29.293	23	91	17	68	272.4	-5.0	+47.9
30.424	o	8	o	9	272.6	-4.8	+63.0
Means ...	...	...	7	38	272.98	-5.08	...
Group 1653.							
A large regular spot, α , accompanied by a number of smaller spots. The latter undergo frequent changes in number, area, and arrangement.							
Apr. 27.408	16	130	38	300	171.5	-10.0	-78.0
28.405	58	334	73	420	169.4	-9.9	-66.9
29.293	107	560	92	495	168.8	-9.5	-55.7
30.424	114	723	74	473	169.4	-9.7	-40.2
May 1.421	128	759	71	424	170.2	-10.1	-26.2
2.435	121	817	62	420	171.1	-10.2	-11.9
3.585	87	717	44	361	171.2	-10.7	+3.3
4.490	93	650	49	341	171.6	-10.8	+15.7
5.279	121	582	67	323	171.5	-11.2	+26.1
6.488	77	514	42	347	171.6	-10.3	+42.1
7.544	68	563	61	505	171.3	-9.8	+55.9
8.390	40	407	53	546	172.4	-9.4	+68.1
9.409	4	135	11	382	171.0	-10.0	+80.2
Means ...	...	...	57	411	170.85	-10.12	...
Group 1654.							
A very small faint spot.							
Apr. 28.405	o	4	o	2	245.3	-12.0	+9.0
Means ...	...	...	o	2	245.3	-12.0	...
Group 1655.							
A very small spot.							
Apr. 28.405	2	4	1	2	231.9	-12.5	-4.4
Means ...	...	...	1	2	231.9	-12.5	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1656.							
A single spot. It has greatly decreased in size by April 29.							
1885. _d Apr. 28.405	0	16	0	51	154.6	-15.8	-81.7
29.293	0	7	0	9	155.0	-15.9	-69.5
Means ...	...	...	0	30	154.80	-15.85	...
Group 1657.							
A very small spot.							
May 1.421	0	4	0	3	154.9	-13.8	-41.5
Means ...	...	...	0	3	154.9	-13.8	...
Group 1658.							
Two regular spots, <i>a</i> and <i>b</i> , accompanied by a number of smaller spots. The latter undergo continual changes in number, area, and arrangement. <i>b</i> alone remains by May 9. On April 30, <i>b</i> is confused with the smaller spots near it, through the effect of foreshortening.							
Apr. 30.424	0	146	0	369	132.0	+11.4	-77.6
May 1.421	17	239	20	282	132.9	+11.2	-63.5
2.435	41	281	33	229	132.5	+11.2	-50.5
3.585	32	311	20	195	133.3	+11.4	-34.6
4.490	51	364	29	207	133.2	+11.2	-22.7
5.279	83	382	44	204	132.9	+11.5	-12.5
6.488	65	500	34	261	132.9	+11.6	+3.4
7.544	49	395	27	216	133.3	+12.0	+17.9
8.390	47	316	29	191	133.7	+12.2	+29.4
9.409	26	244	19	177	134.5	+12.5	+43.7
10.508	9	130	9	136	134.8	+12.4	+58.5
11.432	6	60	10	96	134.8	+12.4	+70.7
Means ...	...	...	23	214	133.40	+11.75	...
Group 1659.							
Two small spots. Only one is seen on May 3.							
May 1.421	9	24	6	14	234.1	-5.9	+37.7
2.435	4	44	4	36	235.8	-5.4	+52.8
3.585	0	6	0	8	236.9	-5.4	+69.0
Means ...	...	...	3	19	235.60	-5.57	...
Group 1660.							
Two small spots.							
May 1.421	2	24	1	16	234.3	-17.8	+37.9
Means ...	...	...	1	16	234.3	-17.8	...
Group 1661.							
A large irregular spot, <i>a</i> . The outer part of the spot has broken up into a number of small spots by May 6, but a large spot still remains in the centre. It decreases in size on the succeeding days.							
1885. _d May 1.421	12	199	28	456	120.4	+13.9	-76.0
2.435	23	448	27	533	119.5	+13.6	-63.5
3.585	45	618	36	489	119.5	+13.9	-48.4
4.490	62	700	41	462	119.2	+13.7	-36.7
5.279	97	672	58	400	119.1	+13.7	-26.3
6.488	117	737	63	398	119.4	+14.6	-10.1
7.544	24	446	13	236	119.1	+14.3	+3.7
8.390	35	312	19	172	119.3	+14.9	+15.0
9.409	22	258	13	156	119.8	+15.4	+29.0
10.508	6	48	5	35	119.6	+15.6	+43.3
11.432	5	41	5	39	119.2	+15.8	+55.1
12.419	2	25	3	36	118.8	+15.5	+67.8
Means ...	...	...	26	284	119.41	+14.58	...
Group 1662.							
A regular spot, <i>a</i> . It increases in size from day to day until May 7 and 8. On May 6 the penumbra of the spot becomes extended towards the south, the extension being measured as a separate spot. On May 7 and the succeeding days, spots are seen s.p. of <i>a</i> , and the group becomes a short stream of spots closely following each other.							
May 3.585	0	29	0	66	90.8	+4.7	-77.1
4.490	9	76	11	93	90.9	+4.3	-65.0
5.279	19	147	18	136	90.4	+4.7	-55.0
6.488	22	271	14	177	90.5	+3.9	-39.0
7.544	22	294	12	165	90.8	+4.2	-24.6
8.390	56	431	29	224	91.3	+4.1	-13.0
9.409	43	318	22	161	91.1	+4.3	+0.3
10.508	17	341	9	178	91.7	+3.7	+15.4
11.432	21	243	12	139	91.5	+4.4	+27.4
12.419	21	186	14	124	92.0	+4.1	+41.0
13	No photograph.		(7	74	91.9	+4.5	+53.9)
14.384	0	18	0	24	91.7	+5.0	+66.8
Means ...	...	...	12	130	91.22	+4.33	...
Group 1663.							
A regular spot, <i>a</i> , closely followed from May 7 to May 12, and on May 16 by a stream of small spots.							
May 4.490	0	11	0	33	77.1	+14.9	-78.8
5.279	5	75	8	130	75.6	+15.1	-69.8
6.488	11	126	10	113	76.1	+14.6	-53.4
7.544	21	195	14	136	75.1	+14.3	-40.3
8.390	48	284	30	174	74.4	+14.2	-29.9
9.409	32	247	18	135	74.7	+14.3	-16.1
10.508	17	248	9	129	75.6	+14.3	-0.7
11.432	14	243	8	130	75.4	+14.7	+11.3
12.419	19	210	11	123	75.2	+14.6	+24.2
13	No photograph.		(11	105	75.0	+14.6	+37.0)

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbr.	Whole Spot.	Umbr.	Whole Spot.			
Group 1663—continued.							
1885. ^a May 14 ^h 38 ^m 4	12	106	10	86	74.7	+14.6	+49.8
15 ^h 43 ^m 1	4	58	5	69	74.7	+14.7	+63.5
16 ^h 38 ^m 1	0	42	0	87	73.6	+15.0	+74.9
Means ...	...	...	10	112	75.17	+14.61	...
Group 1664.							
Two regular spots, <i>a</i> and <i>b</i> , on May 6. Other spots appear on the succeeding days, and <i>b</i> diminishes in size, so that by May 9 the group has become a long stream of small spots closely following each other, with <i>a</i> as their leader. The small spots rapidly disappear after May 9, and by May 14 <i>a</i> remains alone.							
May 6 ^h 48 ^m 8	1	113	2	189	56.8	—9.0	—72.7
7 ^h 54 ^m 4	27	198	25	187	57.5	—9.1	—57.9
8 ^h 39 ^m 0	48	282	34	206	58.3	—9.1	—46.0
9 ^h 40 ^m 9	41	313	24	187	59.1	—8.7	—31.7
10 ^h 50 ^m 8	10	230	6	121	60.3	—8.2	—16.0
11 ^h 43 ^m 2	23	283	11	142	60.8	—7.8	—3.3
12 ^h 41 ^m 9	21	194	11	99	60.2	—7.7	+9.2
13	No photograph.		(11	81	61.3	—7.4	+23.3)
14 ^h 38 ^m 4	17	99	10	63	62.3	—7.0	+37.4
15 ^h 43 ^m 1	12	81	10	65	62.6	—7.4	+51.4
16 ^h 38 ^m 1	8	37	10	43	63.0	—7.4	+64.3
Means ...	...	...	14	126	60.20	—8.07	...
Group 1665.							
A short stream of very small spots. It is measured in two parts on each day.							
May 7 ^h 54 ^m 4	4	36	3	25	159.5	—12.3	+44.1
8 ^h 39 ^m 0	10	54	9	47	158.6	—12.4	+54.3
9 ^h 40 ^m 9	2	56	2	73	158.1	—12.3	+67.3
Means ...	...	...	5	48	158.73	—12.33	...
Group 1666.							
A short stream of spots, which appears suddenly near the centre of the disk.							
May 8 ^h 39 ^m 0	29	119	15	64	122.6	—3.4	+18.3
9 ^h 40 ^m 9	21	182	13	112	124.5	—3.4	+33.7
10 ^h 50 ^m 8	3	85	2	64	124.6	—3.5	+48.3
Means ...	...	...	10	80	123.90	—3.43	...
Group 1667.							
A small faint spot.							
May 8 ^h 39 ^m 0	0	33	0	18	110.3	+16.3	+6.0
Means ...	..	...	0	18	110.3	+16.3	...
Group 1668.							
A very small faint spot.							
1885. ^a May 9 ^h 40 ^m 9	0	10	0	5	91.4	—24.7	+0.6
Means ...	...	...	0	5	91.4	—24.7	...
Group 1669.							
Two small spots, <i>a</i> and <i>b</i> . They move somewhat away from each other. <i>a</i> has broken up into a number of very small spots by May 18, but is still measured as one.							
May 16 ^h 38 ^m 1	7	33	5	23	314.9	—8.4	—43.8
17 ^h 49 ^m 3	0	66	0	38	315.1	—8.1	—28.8
18 ^h 38 ^m 9	0	50	0	26	316.0	—7.4	—16.1
Means ...	...	...	2	29	315.33	—7.97	...
Group 1670.							
A small regular spot, <i>a</i> , followed by several very small spots. The group increases in size, and <i>a</i> has become a spot of very considerable size by May 20, apparently by coalescing with several of the neighbouring spots. The following spots soon disappear, and by May 24 <i>a</i> remains alone.							
May 16 ^h 38 ^m 1	8	60	9	77	294.0	+13.2	—64.7
17 ^h 49 ^m 3	12	142	9	113	295.0	+13.5	—48.9
18 ^h 38 ^m 9	38	295	26	191	295.6	+13.8	—36.5
19 ^h 41 ^m 5	16	278	9	154	297.9	+13.8	—20.5
20 ^h 47 ^m 4	69	555	36	290	300.8	+13.8	—3.7
21 ^h 55 ^m 6	50	510	26	268	301.4	+13.3	+11.2
22 ^h 47 ^m 7	69	429	39	245	302.8	+13.0	+24.8
23 ^h 41 ^m 8	54	383	35	251	303.4	+12.6	+37.8
24 ^h 37 ^m 5	20	226	17	186	304.2	+12.3	+51.3
25	No photograph.		(18	187	305.4	+12.2	+65.1)
26 ^h 27 ^m 3	7	69	19	188	306.6	+12.0	+78.9
Means ...	...	...	22	195	300.65	+13.05	...
Group 1671.							
A large regular spot, <i>a</i> . One or two very small spots are seen near it May 22-28.							
May 18 ^h 38 ^m 9	8	73	16	144	256.5	—12.6	—75.6
19 ^h 41 ^m 5	22	164	24	179	255.9	—13.0	—62.5
20 ^h 47 ^m 4	38	309	29	240	255.5	—12.3	—49.0
21 ^h 55 ^m 6	44	320	27	197	255.5	—13.3	—34.7
22 ^h 47 ^m 7	41	330	23	186	255.0	—12.6	—23.0
23 ^h 41 ^m 8	48	271	25	140	255.1	—12.8	—10.5
24 ^h 37 ^m 5	47	319	24	163	255.1	—12.5	+2.2
25	No photograph.		(25	169	255.0	—12.5	+14.7)
26 ^h 27 ^m 3	46	305	26	175	254.8	—12.4	+27.1
27 ^h 44 ^m 5	29	196	20	136	255.0	—12.2	+42.8
28 ^h 49 ^m 0	13	118	12	109	255.0	—12.1	+56.6
29 ^h 40 ^m 3	6	64	9	90	254.7	—12.0	+68.3
30 ^h 41 ^m 1	0	35	0	108	253.4	—12.1	+80.4
Means ...	...	...	20	157	255.12	—12.49	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1672.								Group 1675—continued.							
A very large regular spot, α , with from time to time several small spots near it.								1885. α							
May 18 ^h 38 ^m 9	33	138	82	339	254 ^o 6	+13 ^o 6	-77 ^o 5	May 25	No photograph.	(11	76	260 ^o 9	-15 ^o 7	+20 ^o 6)	
19 ^h 41 ^m 5	49	404	58	479	254 ^o 6	+13 ^o 8	-63 ^o 8	26 ^h 27 ^m 3	16	129	10	82	261 ^o 9	-15 ^o 7	+34 ^o 2
20 ^h 47 ^m 4	163	609	133	498	254 ^o 5	+14 ^o 2	-50 ^o 0	27 ^h 44 ^m 5	4	69	3	48	256 ^o 2	-15 ^o 3	+44 ^o 0
21 ^h 55 ^m 6	204	805	129	512	254 ^o 5	+13 ^o 8	-35 ^o 7	28 ^h 49 ^m 0	0	10	0	10	254 ^o 1	-15 ^o 3	+55 ^o 7
22 ^h 47 ^m 7	221	1053	126	599	254 ^o 3	+14 ^o 2	-23 ^o 7	Means	...	...	5	42	257 ^o 48	-15 ^o 84	...
23 ^h 41 ^m 8	185	1042	97	534	254 ^o 4	+13 ^o 9	-11 ^o 2	Group 1676.							
24 ^h 37 ^m 5	171	1191	88	614	254 ^o 2	+13 ^o 8	+1 ^o 3	A small spot.							
25	No photograph.	(93	606	254 ^o 2	+14 ^o 0	+13 ^o 9)		May 20 ^h 47 ^m 4	0	33	0	31	246 ^o 6	-9 ^o 3	-57 ^o 9
26 ^h 27 ^m 3	168	1028	98	598	254 ^o 1	+14 ^o 1	+26 ^o 4	21 ^h 55 ^m 6	2	23	1	16	246 ^o 5	-10 ^o 2	-43 ^o 7
27 ^h 44 ^m 5	76	883	53	613	253 ^o 7	+14 ^o 1	+41 ^o 5	22 ^h 47 ^m 7	2	24	1	15	246 ^o 4	-9 ^o 4	-31 ^o 6
28 ^h 49 ^m 0	52	532	48	494	254 ^o 0	+14 ^o 1	+55 ^o 6	23 ^h 41 ^m 8	0	9	0	5	247 ^o 0	-9 ^o 6	-18 ^o 6
29 ^h 40 ^m 3	17	352	24	488	254 ^o 2	+14 ^o 0	+67 ^o 8	Means	...	...	1	17	246 ^o 63	-9 ^o 63	...
30 ^h 41 ^m 1	4	106	13	336	253 ^o 4	+13 ^o 6	+80 ^o 4	Group 1677.							
Means	...	...	80	516	254 ^o 21	+13 ^o 94	...	A large spot, α , of irregular outline. It rapidly diminishes in size, throwing off some small spots on May 22 and the succeeding days. It has entirely broken up by May 27, but the group is measured together on that day. It has begun to increase in size again by May 29.							
Group 1673.								Group 1677.							
A regular spot.								A large spot, α , of irregular outline. It rapidly diminishes in size, throwing off some small spots on May 22 and the succeeding days. It has entirely broken up by May 27, but the group is measured together on that day. It has begun to increase in size again by May 29.							
May 18 ^h 38 ^m 9	0	33	0	80	254 ^o 0	-8 ^o 4	-78 ^o 1	May 20 ^h 47 ^m 4	71	305	101	433	235 ^o 8	+8 ^o 9	-68 ^o 7
19 ^h 41 ^m 5	8	50	10	58	253 ^o 6	-7 ^o 9	-64 ^o 8	21 ^h 55 ^m 6	33	458	29	396	236 ^o 1	+8 ^o 6	-54 ^o 1
20 ^h 47 ^m 4	6	72	5	58	253 ^o 7	-6 ^o 9	-50 ^o 8	22 ^h 47 ^m 7	37	556	25	381	236 ^o 2	+9 ^o 3	-41 ^o 8
21 ^h 55 ^m 6	11	62	7	38	254 ^o 4	-7 ^o 5	-35 ^o 8	23 ^h 41 ^m 8	19	399	11	233	236 ^o 5	+9 ^o 1	-29 ^o 1
22 ^h 47 ^m 7	18	84	10	46	254 ^o 5	-6 ^o 9	-23 ^o 5	24 ^h 37 ^m 5	23	405	12	214	236 ^o 3	+9 ^o 2	-16 ^o 6
23 ^h 41 ^m 8	6	93	3	47	255 ^o 2	-6 ^o 7	-10 ^o 4	25	No photograph.	(9	170	236 ^o 1	+9 ^o 8	-4 ^o 2)	
24 ^h 37 ^m 5	7	53	3	26	255 ^o 1	-6 ^o 7	+2 ^o 2	26 ^h 27 ^m 3	10	244	5	126	235 ^o 9	+10 ^o 4	+8 ^o 2
25	No photograph.	(4	19	255 ^o 2	-6 ^o 4	+14 ^o 9)		27 ^h 44 ^m 5	26	270	14	152	236 ^o 5	+10 ^o 3	+24 ^o 3
26 ^h 27 ^m 3	8	21	4	12	255 ^o 2	-6 ^o 0	+27 ^o 5	28 ^h 49 ^m 0	4	90	2	59	237 ^o 0	+10 ^o 3	+38 ^o 6
27 ^h 44 ^m 5	0	8	0	5	255 ^o 3	-5 ^o 8	+43 ^o 1	29 ^h 40 ^m 3	4	144	3	114	236 ^o 2	+9 ^o 9	+49 ^o 8
Means	...	...	5	39	254 ^o 62	-6 ^o 92	...	30 ^h 41 ^m 1	6	75	7	82	235 ^o 1	+10 ^o 2	+62 ^o 1
Group 1674.								31 ^h 17 ^m 7	3	59	4	97	234 ^o 9	+10 ^o 0	+72 ^o 0
Three small spots, α , β , and γ , on May 20; only α remains by May 21.								Means	...	...	18	205	236 ^o 05	+9 ^o 67	...
May 20 ^h 47 ^m 4	4	45	2	25	285 ^o 0	+16 ^o 2	-19 ^o 5	Group 1678.							
21 ^h 55 ^m 6	0	16	0	8	286 ^o 7	+16 ^o 6	-3 ^o 5	A regular spot, α . A few very small spots are seen near it on May 24, 27, 30, and 31.							
Means	...	...	1	17	285 ^o 85	+16 ^o 40	...	May 20 ^h 47 ^m 4	0	81	0	205	225 ^o 9	-17 ^o 3	-78 ^o 6
Group 1675.								21 ^h 55 ^m 6	18	164	20	186	227 ^o 1	-17 ^o 7	-63 ^o 1
A small spot, α , on May 20. Other spots appear near it on the succeeding days, and the group becomes a long straggling stream of small spots, which change from day to day. α has disappeared by May 23. The group is mainly measured in two clusters on May 23-26; the first of these two clusters has disappeared by May 27.								22 ^h 47 ^m 7	53	214	44	179	226 ^o 5	-17 ^o 2	-51 ^o 5
May 20 ^h 47 ^m 4	0	21	0	18	251 ^o 9	-16 ^o 9	-52 ^o 6	23 ^h 41 ^m 8	31	281	21	188	226 ^o 6	-17 ^o 7	-39 ^o 0
21 ^h 55 ^m 6	0	21	0	14	254 ^o 2	-16 ^o 7	-36 ^o 0	24 ^h 37 ^m 5	72	356	41	205	226 ^o 7	-17 ^o 4	-26 ^o 2
22 ^h 47 ^m 7	10	44	6	24	258 ^o 3	-15 ^o 4	-19 ^o 7	25	No photograph.	(42	206	226 ^o 8	-17 ^o 4	-13 ^o 6)	
23 ^h 41 ^m 8	0	66	0	34	260 ^o 0	-15 ^o 9	-5 ^o 6	26 ^h 27 ^m 3	83	398	43	207	226 ^o 8	-17 ^o 3	-0 ^o 9
24 ^h 37 ^m 5	21	135	12	69	259 ^o 8	-15 ^o 7	+6 ^o 9	27 ^h 44 ^m 5	62	360	34	193	227 ^o 1	-17 ^o 0	+14 ^o 9
								28 ^h 49 ^m 0	52	301	31	181	227 ^o 1	-16 ^o 9	+28 ^o 7
								29 ^h 40 ^m 3	36	277	27	178	227 ^o 3	-16 ^o 8	+40 ^o 9
								30 ^h 41 ^m 1	35	191	31	169	226 ^o 9	-16 ^o 4	+53 ^o 9

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1678—continued.							
1885. _d May 31.177	29	159	35	190	227.3	-16.8	+64.4
June 1.388	0	60	0	191	227.4	-16.2	+80.6
Means ...	...	...	28	191	226.88	-17.08	...
Group 1679. A small spot.							
May 21.556	0	11	0	12	353.9	-3.0	+63.7
22.477	0	9	0	17	353.3	-3.8	+75.3
Means ...	...	...	0	15	353.60	-3.40	...
Group 1680. Two small spots.							
May 21.556	0	41	0	21	304.0	-6.5	+13.8
Means ...	...	...	0	21	304.0	-6.5	...
Group 1681. A small spot on May 23. On May 24 and succeeding days a regular spot, <i>a</i> , followed by a cluster of small spots.							
May 23.418	0	40	0	20	277.8	-10.2	+12.2
24.375	11	94	6	52	278.5	-9.6	+25.6
25	No photograph.		(9	94	278.3	-10.0	+38.0)
26.273	16	171	12	136	278.1	-10.3	+50.4
27.445	14	115	16	140	277.7	-9.8	+65.5
28.490	0	7	0	15	274.5	-10.6	+76.1
Means ...	...	...	7	76	277.48	-10.08	...
Group 1682. A regular spot, <i>a</i> . It diminishes in size from May 23 to May 29. A very small spot is seen near it on June 1.							
May 23.418	6	31	16	88	185.6	-8.8	-80.0
24.375	6	59	8	77	185.5	-8.4	-67.4
25	No photograph.		(10	66	185.3	-8.2	-55.1)
26.273	17	80	12	55	185.0	-7.9	-42.7
27.445	6	52	4	30	185.2	-7.9	-27.0
28.490	7	47	4	24	185.0	-7.3	-13.4
29.403	4	27	2	14	185.2	-7.1	-1.2
30.411	4	25	2	13	184.9	-6.9	+11.9
31.177	5	23	3	12	185.0	-7.1	+22.1
June 1.388	0	22	0	14	184.9	-6.7	+38.1
Means ...	...	...	6	39	185.16	-7.63	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1683.							
Two very small spots, <i>a</i> and <i>b</i> , on May 24. A third spot, <i>c</i> , is seen near them on May 26. <i>b</i> and <i>c</i> have disappeared by May 27, and a fourth spot, <i>d</i> , is seen near <i>a</i> .							
1885. _d May 24.375	3	20	2	10	268.7	-3.2	+15.8
25	No photograph.		(4	29	269.7	-3.0	+29.4)
26.273	6	69	5	47	270.7	-2.7	+43.0
27.445	4	48	4	48	272.1	-2.0	+59.9
Means ...	...	...	4	34	270.30	-2.73	...
Group 1684. A small spot.							
May 27.445	0	8	0	15	137.0	+11.3	-75.2
28.490	0	11	0	12	136.8	+11.7	-61.6
29.403	3	10	2	8	137.1	+11.5	-49.3
Means ...	...	...	1	12	136.97	+11.50	...
Group 1685. Two small spots on May 29 and 30. No trace of the group can be seen on May 31, but one small spot is seen on June 1.							
May 29.403	0	21	0	23	126.0	-23.0	-60.4
30.411	0	12	0	10	123.4	-22.9	-49.6
31.177	0	0	0	0	...	...	...
June 1.388	0	18	0	10	126.6	-24.0	-20.2
Means ...	...	...	0	11	125.33	-23.30	...
Group 1686. Two small spots, <i>a</i> and <i>b</i> , on May 30. These have moved apart by May 31. <i>b</i> has greatly increased in size by June 1, and several very small spots have appeared between <i>a</i> and <i>b</i> . Only <i>a</i> and <i>b</i> remain by June 6, and only <i>a</i> by June 7.							
May 30.411	0	39	0	31	124.0	+14.2	-49.0
31.177	8	72	5	47	124.9	+14.9	-38.0
June 1.388	26	190	15	109	123.5	+14.2	-23.3
2.423	10	230	5	120	123.2	+14.5	-9.9
3.380	16	206	8	108	122.7	+14.1	+2.1
4.400	23	110	13	59	123.0	+14.2	+16.0
5.384	15	94	9	57	124.2	+14.5	+30.3
6.245	19	73	13	52	126.6	+14.5	+44.1
7.416	0	15	0	16	128.5	+14.4	+61.5
8.284	0	9	0	16	129.3	+14.4	+73.7
Means ...	...	...	7	62	124.99	+14.39	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1687.							
Two small spots on May 30. The group increases in size, and consists mainly of three spots, <i>a</i> , <i>b</i> , and <i>c</i> . Between <i>b</i> and <i>c</i> is a group of small spots, which change their position considerably. By June 7 only <i>a</i> and <i>b</i> remain.							
1885. ^d May 30 ⁴¹¹ 31 ¹⁷⁷	2 40	43 291	2 30	40 218	116 ⁴ 115 ⁸	-11 ⁹ -11 ⁹	-56 ⁶ -47 ¹
June 1 ³⁸⁸ 2 ⁴²³ 3 ³⁸⁰ 4 ⁴⁰⁰ 5 ³⁸⁴ 6 ²⁴⁵ 7 ⁴¹⁶ 8 ²⁸⁴ 9 ¹⁶²	35 79 78 82 34 32 15 3 0	510 491 614 551 374 281 79 73 27	21 43 40 43 19 20 13 4 0	310 264 318 286 210 178 69 89 60	114 ⁹ 114 ⁶ 116 ¹ 116 ⁸ 116 ⁸ 118 ⁶ 120 ³ 120 ⁴ 120 ¹	-11 ⁶ -11 ⁷ -12 ³ -12 ⁶ -12 ⁸ -12 ⁷ -13 ⁸ -13 ⁷ -14 ⁰	-31 ⁹ -18 ⁵ -4 ⁵ +9 ⁸ +22 ⁹ +36 ¹ +53 ³ +64 ⁸ +76 ¹
Means ...	...	...	21	186	117 ³⁵	-12 ⁶⁴	...
Group 1688.							
A group of four spots. The group has entirely changed its appearance by June 2, when it consists of a nearly straight stream of very small spots. It is measured in three clusters on June 2 and 3, and in five on June 4. It has again changed its appearance by the latter date, the stream being now nearly circular. Only two spots are seen on June 5.							
June 1 ³⁸⁸ 2 ⁴²³ 3 ³⁸⁰ 4 ⁴⁰⁰ 5 ³⁸⁴	28 24 7 1 0	140 110 107 83 36	15 13 4 1 0	73 57 58 51 26	136 ⁶ 136 ⁶ 137 ⁴ 138 ⁷ 138 ⁰	-12 ⁸ -12 ⁸ -12 ⁹ -12 ⁵ -12 ⁶	-10 ² +3 ⁵ +16 ⁸ +31 ⁷ +44 ¹
Means ...	...	...	7	53	137 ⁴⁶	-12 ⁷²	...
Group 1689.							
Two spots. On June 2 the following spot has broken up into four very small spots. One of these is measured by itself.							
June 1 ³⁸⁸ 2 ⁴²³ 3 ³⁸⁰ 4 ⁴⁰⁰	3 1 0 0	29 35 28 10	2 1 0 0	18 19 15 5	112 ⁹ 113 ⁴ 114 ³ 115 ⁹	+7 ⁴ +7 ⁹ +7 ⁴ +7 ⁵	-33 ⁹ -19 ⁷ -6 ³ +8 ⁹
Means ...	...	...	1	14	114 ¹³	+7 ⁵⁵	...
Group 1690.							
A fine group, consisting mainly of four spots. On June 6, <i>c</i> , which has broken up, is measured in two parts. On June 7, <i>a</i> and <i>b</i> have joined, and are measured together. <i>d</i> has broken up by June 7, and has disappeared by June 11. <i>c</i> increases in size after June 10. A small spot has appeared preceding <i>a</i> by June 7, and other small spots are seen occasionally.							
June 1 ³⁸⁸ 2 ⁴²³ 3 ³⁸⁰	8 32 61	112 547 876	26 43 60	355 898 902	66 ¹ 61 ³ 60 ⁶	-10 ³ -10 ⁹ -11 ²	-80 ⁷ -71 ⁸ -60 ⁰

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1690—continued.							
1885. ^d June 4 ⁴⁰⁰ 5 ³⁸⁴ 6 ²⁴⁵ 7 ⁴¹⁶ 8 ²⁸⁴ 9 ¹⁶² 10 ³⁹⁷ 11 ⁴⁰⁶ 12 ⁴⁴⁹ 13 ⁴⁰⁴	182 143 324 208 290 223 99 96 120 15	1291 1522 1928 1615 1661 1378 1105 972 763 420	137 85 176 106 149 120 64 73 130 31	967 926 1052 832 851 740 692 748 827 787	60 ⁵ 61 ² 60 ⁹ 61 ⁶ 60 ⁹ 62 ² 62 ⁹ 62 ⁵ 62 ² 61 ⁸	-11 ³ -10 ⁸ -10 ⁸ -10 ⁶ -10 ⁶ -10 ⁶ -10 ⁴ -10 ¹ -9 ⁷ -9 ⁸	-46 ⁵ -32 ⁷ -21 ⁶ -5 ⁴ +5 ³ +18 ² +35 ² +48 ³ +61 ⁸ +74 ⁰
Means ...	...	...	92	814	61 ⁹⁰	-10 ⁵⁵	...
Group 1691.							
Three small spots seen only on this day.							
June 3 ³⁸⁰	0	23	0	14	94 ⁷	-12 ⁵	-25 ⁹
Means ...	...	...	0	14	94 ⁷	-12 ⁵	...
Group 1692.							
A faint spot.							
June 4 ⁴⁰⁰ 5 ³⁸⁴ 6 ²⁴⁵	0 0 0	17 19 16	0 0 0	58 25 15	25 ⁸ 25 ⁷ 25 ³	-2 ⁰ -1 ⁷ -1 ⁹	-81 ² -68 ² -57 ²
Means ...	...	...	0	33	25 ⁶⁰	-1 ⁸⁷	...
Group 1693.							
Two spots, which separate and diminish in size.							
June 7 ⁴¹⁶ 8 ²⁸⁴ 9 ¹⁶²	10 14 0	162 108 17	6 9 0	94 71 14	94 ⁰ 93 ⁷ 95 ⁴	-13 ⁵ -13 ⁶ -13 ⁴	+27 ⁰ +38 ¹ +51 ⁴
Means ...	...	...	5	60	94 ³⁷	-13 ⁵⁰	...
Group 1694.							
A very large spot, <i>a</i> . On June 9 it has three companions, which are measured together on June 10 and 12. On June 11, <i>a</i> breaks into two parts, <i>b</i> and <i>c</i> . Small spots are detached on June 14 and 15.							
June 7 ⁴¹⁶ 8 ²⁸⁴ 9 ¹⁶² 10 ³⁹⁷ 11 ⁴⁰⁶	53 212 255 183 186	316 673 952 1192 1108	83 210 194 110 100	494 665 721 711 600	356 ⁴ 357 ² 357 ⁰ 357 ⁵ 357 ¹	-14 ⁷ -14 ⁶ -14 ³ -14 ² -14 ³	-70 ⁶ -58 ⁴ -47 ⁰ -30 ² -17 ¹

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1694—continued.								Group 1698. Two very small spots.							
1885. _d June 12 ⁴⁴⁹	193	1296	101	674	357°0	−14°2	−3°4	1885. _d June 12 ⁴⁴⁹	0	8	0	6	311°5	+15°1	−48°9
13 ⁴⁰⁴	167	1195	87	627	357°3	−14°4	+9°5	Means	...	...	0	6	311°5	+15°1	...
14 ⁵⁴¹	138	948	79	543	356°7	−14°5	+24°0	Group 1699. A large spot, <i>a</i> , with two small companions, on June 14. <i>a</i> has broken up by June 16 into two principal spots, <i>b</i> and <i>c</i> , with small companions.							
15 ⁴⁸²	108	811	70	529	356°8	−14°7	+36°5	June 12 ⁴⁴⁹	10	105	19	187	286°9	−8°2	−73°5
16 ⁴³¹	88	564	69	449	356°8	−14°5	+49°0	13 ⁴⁰⁴	7	130	8	136	286°8	−8°5	−61°0
17 ²¹⁸	91	447	93	457	356°3	−15°1	+59°0	14 ⁵⁴¹	19	262	13	191	287°1	−8°0	−45°6
18 ⁴⁷⁰	23	176	42	389	356°8	−14°7	+76°0	15 ⁴⁸²	18	261	11	158	288°2	−7°8	−32°1
Means	...	...	103	572	356°91	−14°52	...	16 ⁴³¹	31	313	17	169	288°3	−7°4	−19°5
Group 1695. A large spot, which rapidly diminishes in size. On June 11 it breaks into two parts, and the preceding spot is not seen on the next day. A different spot is seen preceding on June 13. On June 14 the group consists of several very faint spots.								17 ²¹⁸	26	161	13	83	288°6	−7°6	−8°7
June 8 ²⁸⁴	0	162	0	263	344°3	−15°3	−71°3	18 ⁴⁷⁰	21	91	11	46	288°9	−7°0	+8°1
9 ¹⁶²	12	168	13	174	344°2	−15°3	−59°8	19 ⁴⁸⁴	9	69	5	37	289°2	−7°0	+21°9
10 ³⁹⁷	13	146	9	105	344°2	−14°9	−43°5	20 ⁴¹⁴	8	23	5	14	288°7	−6°9	+33°8
11 ⁴⁰⁶	6	111	4	68	344°0	−15°2	−30°2	21 ⁵¹⁰	3	13	2	10	288°8	−6°5	+48°3
12 ⁴⁴⁹	8	28	5	15	343°5	−14°7	−16°9	Means	...	...	10	103	288°15	−7°49	...
13 ⁴⁰⁴	0	16	0	8	344°1	−14°6	−3°7	Group 1700. A small regular spot.							
14 ⁵⁴¹	0	88	0	47	346°3	−15°4	+13°6	June 12 ⁴⁴⁹	0	7	0	17	282°9	−1°3	−77°5
Means	...	...	4	97	344°37	−15°06	...	13 ⁴⁰⁴	1	18	1	22	282°0	−1°5	−65°8
Group 1696. A faint spot.								14 ⁵⁴¹	0	19	0	15	281°9	−1°4	−50°8
June 9 ¹⁶²	0	10	0	18	330°5	+8°8	−73°5	15 ⁴⁸²	0	10	0	7	282°0	−1°3	−38°3
Means	...	...	0	18	330°5	+8°8	...	16 ⁴³¹	0	13	0	7	282°3	−1°3	−25°5
Group 1697. One faint spot on June 11, five on June 12, four on June 13. Of the four seen on June 13 the third has disappeared by June 14, and the two preceding are measured together.								17 ²¹⁸	0	10	0	5	282°1	−1°7	−15°2
June 11 ⁴⁰⁶	0	4	0	2	29°8	+4°6	+15°6	18 ⁴⁷⁰	0	13	0	7	282°4	−1°3	+1°6
12 ⁴⁴⁹	25	168	15	98	30°2	+5°0	+29°8	Means	...	...	0	11	282°23	−1°40	...
13 ⁴⁰⁴	0	136	0	91	31°2	+5°1	+43°4	Group 1701. One spot, <i>a</i> , on June 14. Another, <i>b</i> , appears on June 15, and has disappeared by June 18.							
14 ⁵⁴¹	0	111	0	103	30°1	+4°9	+57°4	June 14 ⁵⁴¹	0	18	0	20	270°2	−10°7	−62°5
Means	...	...	4	74	30°33	+4°90	...	15 ⁴⁸²	5	44	4	36	269°9	−10°7	−50°4
Group 1698.								16 ⁴³¹	25	73	16	47	270°5	−10°7	−37°3
June 12 ⁴⁴⁹	0	8	0	6	311°5	+15°1	−48°9	17 ²¹⁸	13	56	8	33	270°8	−11°0	−26°5
Means	...	...	0	6	311°5	+15°1	...	18 ⁴⁷⁰	7	33	4	17	272°5	−10°7	−8°3
Group 1699.								Means	...	...	6	31	270°78	−10°76	...
June 12 ⁴⁴⁹	10	105	19	187	286°9	−8°2	−73°5	Group 1700.							
13 ⁴⁰⁴	7	130	8	136	286°8	−8°5	−61°0	June 12 ⁴⁴⁹	0	7	0	17	282°9	−1°3	−77°5
14 ⁵⁴¹	19	262	13	191	287°1	−8°0	−45°6	13 ⁴⁰⁴	1	18	1	22	282°0	−1°5	−65°8
15 ⁴⁸²	18	261	11	158	288°2	−7°8	−32°1	14 ⁵⁴¹	0	19	0	15	281°9	−1°4	−50°8
16 ⁴³¹	31	313	17	169	288°3	−7°4	−19°5	15 ⁴⁸²	0	10	0	7	282°0	−1°3	−38°3
17 ²¹⁸	26	161	13	83	288°6	−7°6	−8°7	16 ⁴³¹	0	13	0	7	282°3	−1°3	−25°5
18 ⁴⁷⁰	21	91	11	46	288°9	−7°0	+8°1	17 ²¹⁸	0	10	0	5	282°1	−1°7	−15°2
19 ⁴⁸⁴	9	69	5	37	289°2	−7°0	+21°9	18 ⁴⁷⁰	0	13	0	7	282°4	−1°3	+1°6
20 ⁴¹⁴	8	23	5	14	288°7	−6°9	+33°8	Means	...	...	0	11	282°23	−1°40	...
21 ⁵¹⁰	3	13	2	10	288°8	−6°5	+48°3	Group 1701.							
Means	...	...	10	103	288°15	−7°49	...	June 14 ⁵⁴¹	0	18	0	20	270°2	−10°7	−62°5
Group 1700.								15 ⁴⁸²	5	44	4	36	269°9	−10°7	−50°4
June 12 ⁴⁴⁹	0	7	0	17	282°9	−1°3	−77°5	16 ⁴³¹	25	73	16	47	270°5	−10°7	−37°3
13 ⁴⁰⁴	1	18	1	22	282°0	−1°5	−65°8	17 ²¹⁸	13	56	8	33	270°8	−11°0	−26°5
14 ⁵⁴¹	0	19	0	15	281°9	−1°4	−50°8	18 ⁴⁷⁰	7	33	4	17	272°5	−10°7	−8°3
15 ⁴⁸²	0	10	0	7	282°0	−1°3	−38°3	Means	...	...	6	31	270°78	−10°76	...
16 ⁴³¹	0	13	0	7	282°3	−1°3	−25°5	Group 1700.							
17 ²¹⁸	0	10	0	5	282°1	−1°7	−15°2	June 12 ⁴⁴⁹	0	7	0	17	282°9	−1°3	−77°5
18 ⁴⁷⁰	0	13	0	7	282°4	−1°3	+1°6	13 ⁴⁰⁴	1	18	1	22	282°0	−1°5	−65°8
Means	...	...	0	11	282°23	−1°40	...	14 ⁵⁴¹	0	19	0	15	281°9	−1°4	−50°8
Group 1701.								15 ⁴⁸²	0	10	0	7	282°0	−1°3	−38°3
June 14 ⁵⁴¹	0	18	0	20	270°2	−10°7	−62°5	16 ⁴³¹	0	13	0	7	282°3	−1°3	−25°5
15 ⁴⁸²	5	44	4	36	269°9	−10°7	−50°4	17 ²¹⁸	0	10	0	5	282°1	−1°7	−15°2
16 ⁴³¹	25	73	16	47	270°5	−10°7	−37°3	18 ⁴⁷⁰	0	13	0	7	282°4	−1°3	+1°6
17 ²¹⁸	13	56	8	33	270°8	−11°0	−26°5	Means	...	...	0	11	282°23	−1°40	...
18 ⁴⁷⁰	7	33	4	17	272°5	−10°7	−8°3	Group 1701.							
Means	...	...	6	31	270°78	−10°76	...	June 14 ⁵⁴¹	0	18	0	20	270°2	−10°7	−62°5

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1702. A regular spot.							
1885. _a June 14 ⁵⁴ 1	6	80	10	134	260 ²	+ 8 ⁶	-72 ⁵
15 ⁴⁸ 2	11	117	11	117	260 ⁶	+ 8 ⁷	-59 ⁷
16 ⁴³ 1	23	171	17	126	261 ¹	+ 8 ⁵	-46 ⁷
17 ²¹ 8	34	204	21	128	261 ¹	+ 8 ¹	-36 ²
18 ⁴⁷ 0	31	226	17	121	261 ¹	+ 8 ¹	-19 ⁷
19 ⁴⁸ 4	26	207	13	105	261 ⁴	+ 8 ³	- 5 ⁹
20 ⁴¹ 4	29	251	15	127	261 ⁴	+ 8 ⁵	+ 6 ⁵
21 ⁵¹ 0	20	196	11	106	261 ⁵	+ 8 ⁶	+21 ⁰
22 ⁴⁰ 9	24	192	14	117	261 ⁶	+ 8 ⁹	+33 ⁰
23 ⁴¹ 6	20	129	15	95	261 ⁹	+ 9 ²	+46 ⁶
24 ⁴⁰ 1	5	65	5	65	262 ¹	+ 9 ²	+59 ⁹
25 ²⁵ 1	2	21	4	33	262 ⁹	+ 9 ⁵	+71 ⁸
Means ...	...	...	13	106	261 ⁴¹	+ 8 ⁶⁸	...
Group 1703. Two spots, <i>a</i> and <i>b</i> , are seen on June 15. Another spot, <i>c</i> , is seen near <i>b</i> on June 16. <i>b</i> has disappeared by June 17, and <i>a</i> has divided into two portions.							
June 14 ⁵⁴ 1	0	21	0	54	255 ²	-21 ⁸	-77 ⁵
15 ⁴⁸ 2	10	192	14	257	254 ⁷	-21 ⁹	-65 ⁶
16 ⁴³ 1	9	127	9	122	253 ⁴	-22 ⁵	-54 ⁴
17 ²¹ 8	5	79	3	61	252 ⁹	-22 ⁸	-44 ⁴
18 ⁴⁷ 0	0	23	0	14	256 ⁰	-22 ⁶	-24 ⁸
Means ...	...	...	5	102	254 ⁴⁴	-22 ³²	...
Group 1704. Three small spots; two are measured together on June 15.							
June 15 ⁴⁸ 2	2	67	1	36	299 ⁵	- 3 ⁵	-20 ⁸
16 ⁴³ 1	4	22	2	11	300 ⁸	- 3 ⁷	- 7 ⁰
17 ²¹ 8	0	30	0	15	301 ¹	- 3 ⁷	+ 3 ⁸
Means ...	...	...	1	21	300 ⁴⁷	- 3 ⁶³	...
Group 1705. Two irregularly shaped groups, which diminish in size after June 20. Small companions are measured separately on June 17, 21, and 22.							
June 15 ⁴⁸ 2	6	74	6	73	262 ⁹	-14 ³	-57 ⁴
16 ⁴³ 1	20	199	15	147	262 ⁸	-13 ⁹	-45 ⁰
17 ²¹ 8	25	401	16	254	262 ⁹	-14 ⁵	-34 ⁴
18 ⁴⁷ 0	47	683	26	375	262 ⁹	-15 ⁰	-17 ⁹
19 ⁴⁸ 4	33	472	17	248	263 ³	-15 ²	- 4 ⁰
20 ⁴¹ 4	31	543	17	288	263 ⁶	-15 ¹	+ 8 ⁷
21 ⁵¹ 0	56	512	33	295	264 ¹	-14 ⁹	+23 ⁶
22 ⁴⁰ 9	26	266	17	170	262 ⁹	-14 ⁹	+34 ³
Group 1705—continued.							
1885. _a June 23 ⁴¹ 6	42	144	33	116	264 ¹	-14 ⁹	+48 ⁸
24 ⁴⁰ 1	0	72	0	72	259 ⁷	-16 ⁰	+57 ⁵
25 ²⁵ 1	0	17	0	26	259 ⁷	-16 ⁷	+68 ⁶
Means ...	...	...	16	188	262 ⁶³	-15 ⁰⁴	...
Group 1706. A very large group, consisting of a large spot, <i>a</i> , preceding and an irregular mass following. The latter undergoes constant changes. The entire group appears, and is measured as one spot on June 25. On June 27 it appears as two spots on the limb, which are measured separately.							
June 15 ⁴⁸ 2	27	234	56	518	243 ⁴	+10 ²	-76 ⁹
16 ⁴³ 1	116	1001	145	1310	240 ⁵	+10 ⁷	-67 ³
17 ²¹ 8	203	1530	181	1450	239 ⁶	+10 ⁹	-57 ⁷
18 ⁴⁷ 0	240	2188	160	1482	239 ⁶	+11 ⁰	-41 ²
19 ⁴⁸ 4	312	2571	177	1483	239 ⁸	+11 ¹	-27 ⁵
20 ⁴¹ 4	259	3154	135	1654	240 ³	+10 ⁹	-14 ⁶
21 ⁵¹ 0	298	3762	151	1917	240 ²	+10 ⁹	- 0 ³
22 ⁴⁰ 9	251	3463	130	1799	240 ⁷	+11 ¹	+12 ¹
23 ⁴¹ 6	284	2999	163	1686	241 ¹	+10 ⁹	+25 ⁸
24 ⁴⁰ 1	105	2139	70	1415	242 ¹	+10 ⁵	+39 ⁹
25 ²⁵ 1	70	1512	56	1212	242 ²	+10 ⁴	+51 ¹
26	No photograph.	(28	821	242 ⁴	+ 9 ⁵	+65 ⁹)	
27 ⁴⁴ 5	0	144	0	430	242 ⁵	+ 8 ⁶	+80 ⁶
Means ...	...	...	112	1321	241 ¹¹	+10 ⁵²	...
Group 1707. Two small regular spots, <i>a</i> and <i>b</i> .							
June 16 ⁴³ 1	9	53	5	30	331 ⁵	-14 ³	+23 ⁷
17 ²¹ 8	6	111	4	70	332 ³	-14 ⁵	+35 ⁰
Means ...	...	...	5	50	331 ⁹⁰	-14 ⁴⁰	...
Group 1708. A very small spot.							
June 19 ⁴⁸ 4	0	21	0	12	290 ³	-10 ⁷	+23 ⁰
20 ⁴¹ 4	1	9	1	6	290 ⁸	-10 ⁸	+35 ⁹
Means ...	...	...	1	9	290 ⁵⁵	-10 ⁷⁵	...
Group 1709. Two very small faint spots.							
June 23 ⁴¹ 6	5	24	2	13	201 ²	- 9 ⁵	-14 ¹
24 ⁴⁰ 1	0	15	0	7	201 ⁶	-10 ¹	- 0 ⁶
Means ...	...	...	1	10	201 ⁴⁰	- 9 ⁸⁰	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1710.								
Two spots, which appear to separate. The following spot diminishes, and has disappeared by June 27, on which day the preceding spot has developed into a large group, which, after some changes, remains as two principal spots, <i>a</i> and <i>b</i> . <i>a</i> has a small companion on June 30 and July 1, and by July 2 has divided into two spots. <i>b</i> is measured as two spots on July 1.								
1885. <i>a</i>								
June 23 ⁴ 16	32	95	31	95	157 ³	-14 ⁵	-58 ⁰	
24 ⁴ 01	29	245	21	179	158 ³	-14 ⁵	-43 ⁹	
25 ² 51	18	210	11	130	159 ⁸	-14 ⁶	-31 ³	
26	No photograph.		(30	415	161 ¹	-14 ²	-15 ⁴)	
27 ⁴ 45	90	134 ⁰	48	699	162 ⁴	-13 ⁸	+0 ⁵	
28 ⁴ 12	182	1394	98	749	162 ⁸	-13 ⁵	+13 ⁸	
29 ⁵ 81	120	1141	73	689	163 ⁵	-12 ⁸	+29 ⁸	
30 ⁴ 09	79	868	56	606	164 ¹	-12 ¹	+41 ⁴	
July 1 ⁴ 96	66	713	65	685	165 ⁴	-11 ⁸	+57 ⁰	
2 ⁴ 02	23	327	40	499	165 ⁹	-11 ⁹	+69 ⁶	
Means ...	...	...	47	475	162 ⁰ 6	-13 ³ 7	...	
Group 1711.								
Three spots on June 24. Only one is seen after June 25.								
June 23 ⁴ 16	17	113	29	192	143 ⁹	-16 ⁴	-71 ⁴	
24 ⁴ 01	26	236	26	251	142 ⁷	-16 ⁷	-59 ⁵	
25 ² 51	26	250	20	198	143 ⁶	-16 ⁵	-47 ⁵	
26	No photograph.		(12	118	144 ⁴	-16 ³	-32 ¹)	
27 ⁴ 45	6	67	3	37	145 ²	-16 ⁰	-16 ⁷	
28 ⁴ 12	11	53	6	28	145 ³	-15 ⁹	-3 ⁷	
29 ⁵ 81	0	33	0	18	145 ²	-15 ⁷	+11 ⁵	
30 ⁴ 09	1	38	1	22	144 ⁸	-15 ⁷	+22 ¹	
July 1 ⁴ 96	0	8	0	5	144 ⁵	-15 ⁵	+36 ¹	
2 ⁴ 02	0	7	0	6	144 ⁶	-15 ⁵	+48 ³	
Means ...	...	...	10	88	144 ⁴ 2	-16 ⁰ 2	...	
Group 1712.								
A small spot.								
June 25 ² 51	0	4	0	5	253 ⁵	-20 ⁶	+62 ⁴	
Means ...	...	...	0	5	253 ⁵	-20 ⁶	...	
Group 1713.								
A group of ten spots on June 28. They separate, and form a straight line of spots, the largest being in the middle.								
June 28 ⁴ 12	15	176	7	89	143 ⁹	-6 ²	-5 ¹	
29 ⁵ 81	0	234	0	121	146 ¹	-5 ⁷	+12 ⁴	
30 ⁴ 09	29	474	16	261	146 ³	-5 ⁹	+23 ⁶	
July 1 ⁴ 96	24	286	15	183	145 ⁸	-6 ⁰	+37 ⁴	
2 ⁴ 02	6	172	4	136	146 ⁵	-5 ⁹	+50 ²	
3 ⁴ 63	7	64	7	71	145 ³	-5 ⁸	+63 ⁰	
Means ...	...	...	8	144	145 ⁶ 5	-5 ⁹ 2	...	
Group 1714.								
Seven large spots, <i>a</i> , <i>b</i> , <i>c</i> , <i>d</i> , <i>e</i> , <i>f</i> , and <i>g</i> , on June 30, with some smaller spots following. <i>b</i> has disappeared by July 2, and <i>a</i> begins to break up on July 4. <i>e</i> is an irregular mass, which has broken up and partly disappeared by July 4, causing an apparent change of place on that day. On July 5 the group appears as a multitude of small spots, and after this the group consists of the spots <i>d</i> , <i>f</i> , and <i>g</i> , with several small spots at some distance. The small spot following <i>d</i> on July 6 is measured with it on July 7.								
1885. <i>a</i>								
June 28 ⁴ 12	0	13	0	60	65 ⁴	-8 ⁴	-83 ⁶	
29 ⁵ 81	0	318	0	763	56 ⁵	-10 ¹	-77 ²	
30 ⁴ 09	39	728	48	928	56 ⁸	-10 ⁰	-65 ⁹	
July 1 ⁴ 96	160	1252	133	1055	56 ³	-9 ⁹	-52 ¹	
2 ⁴ 02	164	1451	110	978	56 ⁴	-10 ¹	-39 ⁹	
3 ⁴ 63	181	1540	104	881	57 ⁰	-10 ¹	-25 ³	
4 ⁴ 59	193	1414	102	751	56 ⁰	-10 ⁸	-13 ¹	
5 ³ 26	238	1176	124	610	55 ⁹	-10 ⁴	-1 ⁷	
6 ⁴ 60	117	763	61	408	55 ¹	-11 ⁰	+12 ⁴	
7 ⁴ 82	48	531	28	305	53 ⁵	-11 ³	+24 ³	
8 ⁴ 27	51	399	34	266	55 ²	-12 ⁰	+38 ⁷	
9 ⁴ 88	24	221	21	189	54 ⁴	-12 ¹	+51 ⁸	
10 ⁴ 39	0	127	0	162	55 ⁰	-12 ⁴	+65 ¹	
11 ⁴ 06	0	100	0	259	54 ⁸	-12 ¹	+77 ⁷	
Means ...	...	...	55	544	56 ³ 1	-10 ⁷ 6	...	
Group 1715.								
A small spot, <i>a</i> , is seen on July 1. Several very small spots appear preceding <i>a</i> on July 2; and a spot, <i>b</i> , somewhat larger than <i>a</i> , appears on July 3. On July 5 the group is much broken up. By July 6, <i>a</i> and <i>b</i> have much increased in size, and appear as broken spots, with a small spot following. By July 8, <i>a</i> and <i>b</i> have coalesced, and are measured together, and by July 9 the group following is included.								
July 1 ⁴ 96	0	21	0	22	50 ³	-19 ⁶	-58 ¹	
2 ⁴ 02	8	38	7	29	51 ⁵	-19 ⁶	-44 ⁸	
3 ⁴ 63	18	158	11	97	54 ⁵	-19 ¹	-27 ⁸	
4 ⁴ 59	16	208	9	118	54 ⁰	-19 ⁰	-15 ¹	
5 ³ 26	57	284	32	154	53 ⁵	-18 ⁶	-4 ¹	
6 ⁴ 60	154	1175	86	651	54 ⁸	-18 ⁴	+12 ¹	
7 ⁴ 82	110	1777	66	1069	53 ⁶	-18 ⁸	+24 ⁴	
8 ⁴ 27	218	1673	150	1148	54 ⁴	-18 ⁶	+37 ⁹	
9 ⁴ 88	146	1442	127	1249	53 ¹	-18 ⁸	+50 ⁵	
10 ⁴ 39	54	1062	65	1270	52 ¹	-18 ⁶	+62 ²	
11 ⁴ 06	25	585	53	1246	51 ²	-18 ⁸	+74 ¹	
Means ...	...	...	55	641	53 ⁰ 0	-18 ⁹ 0	...	
Group 1716.								
A regular spot.								
July 4 ⁴ 59	3	49	7	103	354 ⁴	-15 ¹	-74 ⁷	
5 ³ 26	29	84	35	99	354 ⁵	-14 ⁹	-63 ¹	
6 ⁴ 60	17	112	14	90	354 ⁷	-15 ⁴	-48 ⁰	
7 ⁴ 82	31	142	20	91	353 ⁹	-15 ³	-35 ³	
8 ⁴ 27	17	169	10	97	354 ⁸	-15 ⁴	-21 ⁷	
9 ⁴ 88	25	171	13	92	354 ¹	-15 ³	-8 ⁵	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1716—continued.								Group 1720.							
1885. _d July 10 ^h 43 ^m 9 ^s 12 121 6 64 354°0 −15°1 +4°1 11 ^h 40 ^m 6 ^s 12 121 7 67 353°8 −15°1 +16°7 12 ^h 19 ^m 5 ^s 19 108 11 65 354°1 −15°0 +27°4 13 ^h 48 ^m 9 ^s 10 107 8 80 353°8 −14°8 +44°1 14 ^h 49 ^m 4 ^s 2 54 2 54 353°5 −14°9 +57°2 15 ^h 48 ^m 4 ^s 0 13 0 20 352°7 −15°0 +69°5 Means 11 77 354°03 −15°11 ...								Two principal spots, <i>a</i> and <i>b</i> , and a stream of small spots; <i>a</i> has divided into two by July 17, and breaks up still further on the succeeding days; <i>b</i> at first has two nuclei, but on July 15 and following days there is only one. 1885. _d July 12 ^h 19 ^m 5 ^s 38 296 105 845 246°3 +9°5 −80°4 13 ^h 48 ^m 9 ^s 77 586 85 657 246°0 +10°0 −63°7 14 ^h 49 ^m 4 ^s 92 864 72 663 247°0 +9°6 −49°3 15 ^h 48 ^m 4 ^s 56 960 35 596 247°4 +9°3 −35°8 16 ^h 45 ^m 9 ^s 63 875 34 478 247°7 +9°4 −22°6 17 ^h 49 ^m 3 ^s 83 739 42 378 246°6 +9°2 −10°0 18 ^h 18 ^m 0 ^s 159 849 80 427 248°1 +8°9 +0°6 19 ^h 64 ^m 1 ^s 80 624 43 336 248°8 +8°3 +20°6 20 ^h 56 ^m 0 ^s 38 487 21 295 250°0 +8°0 +34°0 21 ^h 50 ^m 7 ^s 28 317 19 224 248°2 +8°4 +44°7 22 ^h 47 ^m 5 ^s 6 201 5 174 245°7 +9°3 +55°0 23 ^h 41 ^m 0 ^s 10 117 13 148 245°4 +9°2 +67°1 24 ^h 45 ^m 1 ^s 0 92 0 245 244°5 +9°3 +80°0 Means 43 420 247°05 +9°11 ...							
Group 1717. A spot, with smaller spots following, one of which has disappeared by July 6, and the others have coalesced by July 7, to form one spot. July 5 ^h 32 ^m 6 ^s 10 112 6 66 82°4 −17°3 +24°8 6 ^h 46 ^m 0 ^s 22 95 16 68 84°1 −16°6 +41°4 7 ^h 48 ^m 2 ^s 8 218 8 206 83°9 −16°9 +54°7 8 ^h 42 ^m 7 ^s 5 114 8 168 84°4 −16°6 +67°9 Means 10 127 83°70 −16°85 ...								Group 1721. A very small spot. July 14 ^h 49 ^m 4 ^s 0 10 0 7 256°6 +2°6 −39°7 Means 0 7 256°6 +2°6 ...							
Group 1718. A regular spot, <i>a</i> . A faint spot follows <i>a</i> on July 9 and the succeeding days. It has divided into two portions by July 12. July 9 ^h 48 ^m 8 ^s 10 140 18 244 290°1 −7°5 −72°5 10 ^h 43 ^m 9 ^s 17 329 17 345 289°6 −7°7 −60°3 11 ^h 40 ^m 6 ^s 45 437 33 333 289°7 −7°6 −47°4 12 ^h 19 ^m 5 ^s 111 488 69 306 291°3 −7°8 −35°4 13 ^h 48 ^m 9 ^s 99 587 53 316 292°1 −8°0 −17°6 14 ^h 49 ^m 4 ^s 92 486 48 251 293°0 −8°2 −3°3 15 ^h 48 ^m 4 ^s 84 491 44 256 293°2 −8°4 +10°0 16 ^h 45 ^m 9 ^s 56 460 32 260 293°8 −8°4 +23°5 17 ^h 49 ^m 3 ^s 66 345 43 224 293°8 −8°8 +37°2 18 ^h 18 ^m 0 ^s 79 338 60 254 294°1 −9°3 +46°6 19 ^h 64 ^m 1 ^s 33 160 42 203 293°5 −9°8 +65°3 20 ^h 56 ^m 0 ^s 5 74 12 186 293°5 −10°0 +77°5 Means 39 265 292°31 −8°46 ...								Group 1722. A regular spot, <i>a</i> , with two companions. These are measured together on July 15 and 17, and with the large spot on July 19. Only the large spot, <i>a</i> , is seen on July 20. Two spots, <i>b</i> and <i>c</i> , have appeared by July 21, following <i>a</i> ; <i>b</i> increases in size, and has broken into two, <i>d</i> and <i>e</i> , by July 23. July 14 ^h 49 ^m 4 ^s 0 19 0 53 217°2 −7°7 −79°1 15 ^h 48 ^m 4 ^s 2 115 2 155 215°9 −7°4 −67°3 16 ^h 45 ^m 9 ^s 9 218 8 193 216°1 −7°0 −54°2 17 ^h 49 ^m 3 ^s 43 282 29 192 215°6 −6°9 −41°0 18 ^h 18 ^m 0 ^s 49 321 29 194 215°5 −6°5 −32°0 19 ^h 64 ^m 1 ^s 29 217 15 113 216°1 −6°3 −12°1 20 ^h 56 ^m 0 ^s 17 170 9 87 216°6 −6°2 +0°6 21 ^h 50 ^m 7 ^s 8 285 4 149 214°6 −6°3 +11°1 22 ^h 47 ^m 5 ^s 0 229 0 127 212°8 −5°3 +22°1 23 ^h 41 ^m 0 ^s 42 426 25 267 213°7 −5°0 +35°4 24 ^h 45 ^m 1 ^s 24 370 20 293 214°1 −4°5 +49°6 25 ^h 57 ^m 6 ^s 0 40 0 50 215°9 −4°9 +66°2 Means 12 156 215°34 −6°17 ...							
Group 1719. A very small spot on July 12. On July 13 an irregular spot, with two small spots following it. On the next day the group consists of two faint broken patches. By July 15 the preceding patch has become a regular spot. The following patch has disappeared by July 16. A fresh spot has appeared by July 18. July 12 ^h 19 ^m 5 ^s 0 5 0 3 284°9 +14°4 −41°8 13 ^h 48 ^m 9 ^s 1 58 1 32 287°2 +15°0 −22°5 14 ^h 49 ^m 4 ^s 0 109 0 57 286°0 +14°5 −10°3 15 ^h 48 ^m 4 ^s 11 86 6 43 286°9 +14°5 +3°7 16 ^h 45 ^m 9 ^s 2 19 1 10 290°0 +15°0 +19°7 17 ^h 49 ^m 3 ^s 4 14 3 9 290°5 +14°9 +33°9 18 ^h 18 ^m 0 ^s 7 33 5 22 290°3 +15°0 +42°8 Means 2 25 287°97 +14°76 ...								Group 1723. A very small spot. July 16 ^h 45 ^m 9 ^s 0 14 0 8 244°9 −20°8 −25°4 Means 0 8 244°9 −20°8 ...							

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1723*. Three very small spots.								Group 1727. Two faint spots on July 17. A third has appeared by July 18.							
1885. _d July 17 ⁴⁹³	0	7	0	4	219.9	-13.7	-36.7	1885. _d July 17 ⁴⁹³	0	12	0	6	273.1	-15.4	+16.5
18.180								18.180	5	51	3	30	272.5	-15.4	+25.0
19.641								19.641	4	29	3	22	273.2	-15.6	+45.0
20.560								20.560	0	58	0	59	273.7	-14.9	+57.7
Means ...	...	...	0	4	219.9	-13.7	...	Means ...	...	...	2	29	273.13	-15.33	...
Group 1724. Three spots on July 16. By the next day each has broken up, the first into three small spots, the second into a regular spot, α , and a group of small spots, and the last into a long group of small spots (measured in two) stretching northwards. The first portion of the group has disappeared by July 18, and the last by July 19, leaving only the centre portion, which forms a line of spots on that day. By July 21 the group has much changed, and consists of a large scattered group, with two small spots preceding, which are not seen on the next day.								Group 1728. A regular spot, α . Small spots are seen following α on July 20, 25, and 27.							
July 16.459	0	92	0	92	212.8	-12.9	-57.5	July 17.493	14	109	43	342	176.8	-10.0	-79.8
17.493	32	267	22	198	212.0	-13.1	-44.6	18.180	79	208	146	383	174.4	-10.6	-73.1
18.180	46	334	29	214	213.1	-13.2	-34.4	19.641	88	437	78	387	174.8	-10.4	-53.4
19.641	12	235	6	128	214.8	-13.2	-13.4	20.560	96	600	67	417	174.6	-10.6	-41.4
20.560	5	268	3	141	213.9	-13.8	-2.1	21.507	118	635	71	380	174.9	-11.1	-28.6
21.507	0	350	0	187	214.0	-12.7	+10.5	22.475	96	700	52	382	175.0	-11.7	-15.7
22.475	0	261	0	150	213.3	-12.8	+22.6	23.410	171	792	89	413	174.9	-11.6	-3.4
23.410	0	68	0	44	212.8	-14.0	+34.5	24.451	157	794	83	422	174.7	-11.9	+10.2
Means ...	...	...	8	144	213.34	-13.21	...	25.576	172	716	101	418	175.0	-12.1	+25.3
Group 1725. Two small spots, measured together.								26.501	75	575	50	385	175.5	-11.9	+38.0
July 16.459	0	11	0	12	209.4	-6.9	-60.9	27.433	90	483	75	405	175.7	-11.9	+50.6
17.493	1	17	1	13	209.4	-7.8	-47.2	28.441	61	303	74	370	175.4	-11.8	+63.7
18.180	0	11	0	7	208.4	-9.1	-39.1	29.546	7	161	14	441	174.9	-11.9	+77.9
Means ...	...	...	0	11	209.07	-7.93	...	Means ...	...	...	73	396	175.12	-11.35	...
Group 1726. Three well-defined spots, with small companions, on July 17. Only one small spot is seen on July 19.								Group 1729. A small spot.							
July 17.493	8	159	6	98	288.4	-10.7	+31.8	July 22.475	0	24	0	19	241.6	+15.0	+50.9
18.180	6	32	4	23	288.7	-11.6	+41.2	23.410	0	5	0	6	241.1	+14.7	+62.8
19.641	0	6	0	8	291.9	-12.8	+63.7	Means ...	...	...	0	13	241.35	+14.85	...
Means ...	...	...	3	43	289.67	-11.70	...	Group 1730. Two small spots. The second has increased in size by July 23. The first is not seen on July 24.							
July 17.493	8	159	6	98	288.4	-10.7	+31.8	July 22.475	0	47	0	32	151.8	-16.8	-38.9
18.180	6	32	4	23	288.7	-11.6	+41.2	23.410	10	100	7	62	150.9	-17.5	-27.4
19.641	0	6	0	8	291.9	-12.8	+63.7	24.451	0	35	0	20	149.8	-18.4	-14.7
Means ...	...	...	3	43	289.67	-11.70	...	Means ...	...	...	2	38	150.83	-17.57	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1731.								
Two small spots on July 24. Both have broken up by July 25. Only three spots remain on July 27.								
1885. _d								
July 24 ⁴⁵¹	5	61	4	46	118.4	-12.0	-46.1	
25 ⁵⁷⁶	33	274	20	170	118.6	-11.8	-31.1	
26 ⁵⁰¹	13	345	7	191	118.9	-12.5	-18.6	
27 ⁴³³	16	212	8	114	118.8	-13.1	-6.3	
28 ⁴⁴¹	29	169	16	90	118.9	-12.9	+7.2	
Means	...	...	11	122	118.72	-12.46	...	
Group 1732.								
A small spot, <i>a</i> . Two others, <i>b</i> and <i>c</i> , have appeared by July 26. <i>a</i> has disappeared by July 27, <i>c</i> by July 30, and <i>b</i> has broken up into several portions by July 28.								
July 24 ⁴⁵¹	0	8	0	15	92.3	-13.4	-72.2	
25 ⁵⁷⁶	0	17	0	16	92.8	-13.0	-56.9	
26 ⁵⁰¹	0	66	0	48	94.5	-13.2	-43.0	
27 ⁴³³	13	81	8	49	95.9	-13.3	-29.2	
28 ⁴⁴¹	28	94	16	52	96.4	-12.9	-15.3	
29 ⁵⁴⁶	11	106	6	56	98.3	-12.4	+1.3	
30 ⁴⁸²	23	154	13	85	100.7	-11.7	+15.9	
31 ⁴⁵⁹	8	127	5	77	101.6	-11.7	+29.7	
Aug. 1 ⁴¹⁴	13	67	10	49	103.0	-11.6	+43.8	
2 ⁵¹⁶	9	54	10	58	104.3	-12.4	+59.6	
3 ¹⁸⁸	5	28	8	44	104.8	-13.1	+69.1	
Means	...	...	7	50	98.60	-12.61	...	
Group 1733.								
Two spots, <i>a</i> and <i>b</i> , when first seen. A third spot, <i>c</i> , has become detached from <i>b</i> by July 28. Small companions are seen on July 31 and following days.								
July 27 ⁴³³	0	94	0	207	51.6	-21.4	-73.5	
28 ⁴⁴¹	51	291	64	362	50.0	-21.4	-61.7	
29 ⁵⁴⁶	34	352	29	302	49.5	-21.8	-47.5	
30 ⁴⁸²	33	401	24	279	49.7	-21.3	-35.1	
31 ⁴⁵⁹	25	414	16	257	49.0	-21.6	-22.9	
Aug. 1 ⁴¹⁴	90	555	51	318	48.8	-21.7	-10.4	
2 ⁵¹⁶	74	523	42	298	48.4	-22.2	+3.7	
3 ¹⁸⁸	41	425	23	248	47.9	-22.0	+12.2	
4 ⁴⁰⁹	18	236	11	152	48.1	-21.2	+28.5	
5 ⁴⁸⁸	10	252	8	195	48.1	-21.0	+42.7	
6 ³⁸⁹	6	110	6	112	47.9	-21.5	+54.5	
7 ⁴⁵¹	4	87	7	140	47.2	-21.0	+67.7	
Means	...	...	23	239	48.85	-21.51	...	
Group 1734.								
A small spot.								
July 28 ⁴⁴¹	0	13	0	11	58.5	-12.4	-53.2	
Means	...	...	0	11	58.5	-12.4	...	
Group 1735.								
Two small spots.								
1885. _d								
July 31 ⁴⁵⁹	0	39	0	31	119.5	-14.1	+47.6	
Aug. 1 ⁴¹⁴	0	8	0	8	118.5	-14.2	+59.3	
Means	...	...	0	20	119.00	-14.15	...	
Group 1736.								
Two spots, <i>a</i> and <i>b</i> . Two smaller spots are seen between them on August 5. On August 7 another companion is seen. Only <i>b</i> remains on August 9.								
Aug. 3 ¹⁸⁸	6	38	4	21	8.7	+8.0	-27.0	
4 ⁴⁰⁹	0	150	0	76	10.0	+8.0	-9.6	
5 ⁴⁸⁸	30	185	15	93	11.3	+7.5	+5.9	
6 ³⁸⁹	9	179	5	94	10.5	+7.5	+17.1	
7 ⁴⁵¹	14	167	8	98	9.5	+7.4	+30.0	
8 ³⁸⁶	14	40	9	27	9.2	+7.1	+42.1	
9 ²¹⁰	0	12	0	10	8.3	+6.9	+52.2	
Means	...	...	6	60	9.64	+7.49	...	
Group 1737.								
A regular spot, <i>a</i> , on August 5. Another spot, <i>b</i> , with two companions has appeared by August 8. By August 9, <i>b</i> seems to have changed its position, and a new spot, <i>d</i> , has appeared. <i>b</i> breaks up, and is measured as two on August 12 and 13.								
Aug. 5 ⁴⁸⁸	25	109	35	155	297.7	-10.7	-67.7	
6 ³⁸⁹	32	166	31	158	297.9	-10.4	-55.5	
7 ⁴⁵¹	35	208	25	147	297.9	-10.5	-41.6	
8 ³⁸⁶	57	454	34	278	298.1	-11.3	-29.0	
9 ²¹⁰	101	617	56	340	298.3	-11.9	-17.8	
10 ⁵¹³	128	873	67	463	299.1	-12.2	+0.2	
11 ⁴⁵⁷	98	730	53	398	299.8	-11.7	+13.3	
12 ⁴⁰¹	45	493	26	293	299.2	-11.9	+25.3	
13 ⁴⁰⁷	41	370	27	250	299.6	-11.5	+38.9	
14 ⁵⁴¹	22	186	19	163	298.2	-11.0	+52.6	
15 ⁴²⁸	10	98	12	122	298.1	-10.7	+64.2	
16 ⁴⁰⁷	4	60	9	142	297.1	-10.8	+76.1	
Means	...	...	33	242	298.42	-11.22	...	
Group 1738.								
A regular spot, <i>a</i> . Several small spots have appeared following <i>a</i> by August 7, forming a long stream on the succeeding days.								
Aug. 5 ⁴⁸⁸	0	13	0	40	286.5	-12.1	-78.9	
6 ³⁸⁹	0	60	0	79	288.2	-11.7	-65.2	
7 ⁴⁵¹	47	313	40	277	287.0	-11.5	-52.5	
8 ³⁸⁶	64	526	44	368	286.6	-11.4	-40.5	
9 ²¹⁰	53	422	32	253	287.5	-11.7	-28.6	
10 ⁵¹³	76	472	41	254	287.7	-11.5	-11.2	
11 ⁴⁵⁷	64	509	33	267	287.9	-11.1	+1.4	
12 ⁴⁰¹	57	433	31	237	288.4	-11.3	+14.5	

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.					Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1738—continued.								Group 1742—continued.							
1885. _a Aug. 13 ^h 40 ^m 7 14 ^h 54 ^m 1 15 ^h 42 ^m 8 16 ^h 40 ^m 7 17 ^h 43 ^m 0	54 47 26 17 1	356 294 178 106 26	33 35 25 25 5	213 216 171 161 122	288.9 289.4 290.1 289.8 290.0	—11.1 —11.1 —11.1 —11.1 —11.1	+28.2 +43.8 +56.2 +68.8 +82.6	1885. _a Aug. 16 ^h 40 ^m 7 17 ^h 43 ^m 0 18 ^h 19 ^m 1 19 ^h 47 ^m 5	12 4 9 2	161 98 41 8	8 3 8 2	95 71 38 12	253.3 253.4 254.6 252.0	+13.0 +12.9 +11.7 +11.7	+32.3 +46.0 +57.2 +71.4
Means ...	...	...	26	204	288.31	—11.37	...	Means ...	...	...	4	70	252.08	+12.74	...
Group 1739. Two small spots.								Group 1743. A group of four well-defined spots, the two smallest, long. 272°.1 being measured together.							
Aug. 7 ^h 45 ^m 1	1	27	1	27	36.2	—11.2	+56.7	Aug. 9 ^h 21 ^m 0	12	68	8	47	272.9	+12.8	—43.2
Means ...	...	...	1	27	36.2	—11.2	...	Means ...	...	...	8	47	272.9	+12.8	...
Group 1740. A group of very small spots. By August 9 the preceding spot has broken into two, which are measured together. Only one spot is seen on August 10.								Group 1745. Two spots, <i>a</i> and <i>b</i> . There is a small companion on August 11, and a different one on August 12. By that day <i>b</i> has broken into two. On August 13 there are three small spots following <i>a</i> , two of which have disappeared by the next day. <i>b</i> has broken up into a group of small spots by August 16, and is not seen after August 17.							
Aug. 7 ^h 45 ^m 1 8 ^h 38 ^m 6 9 ^h 21 ^m 0 10 ^h 51 ^m 3	2 3 23 0	15 77 77 23	1 2 12 0	8 40 41 15	332.5 333.3 333.0 336.0	+21.0 +20.4 +21.0 +22.0	—7.0 +6.2 +16.9 +37.1	Aug. 10 ^h 51 ^m 3 11 ^h 45 ^m 7 12 ^h 40 ^m 1 13 ^h 40 ^m 7 14 ^h 54 ^m 1 15 ^h 42 ^m 8 16 ^h 40 ^m 7 17 ^h 43 ^m 0 18 ^h 19 ^m 1 19 ^h 47 ^m 5 20 ^h 49 ^m 2	0 19 12 44 29 41 25 18 20 11 0	33 192 233 326 298 284 235 171 113 56 15	0 19 9 27 16 24 14 10 12 9 0	60 199 174 193 158 155 119 91 67 44 17	224.5 225.3 226.1 227.8 227.6 227.7 228.4 229.6 230.8 231.5 231.6	+6.8 +6.6 +6.1 +6.4 +6.5 +6.6 +6.8 +6.3 +6.3 +6.7 +7.1	—74.4 —61.2 —47.8 —32.9 —18.0 —6.2 +7.4 +22.2 +33.4 +50.9 +64.5
Means ...	...	...	4	26	333.70	+21.10	...	Means ...	...	...	13	116	228.26	+6.56	...
Group 1741. Two small spots.								Group 1746. Two spots on August 12. On the second day there are two spots close together measured as one.							
Aug. 8 ^h 38 ^m 6	0	28	0	21	13.1	+15.6	+46.0	Aug. 12 ^h 40 ^m 1 13 ^h 40 ^m 7	2 0	28 18	1 0	21 11	232.3 233.8	—19.5 —19.1	—41.6 —26.9
Means ...	...	...	0	21	13.1	+15.6	...	Means ...	...	...	1	16	233.05	—19.30	...
Group 1742. One large spot when first seen; it has broken up into a group of small spots by August 9, which continually change in number and position.								Group 1746. Two spots on August 12. On the second day there are two spots close together measured as one.							
Aug. 8 ^h 38 ^m 6 9 ^h 21 ^m 0 10 ^h 51 ^m 3 11 ^h 45 ^m 7 12 ^h 40 ^m 1 13 ^h 40 ^m 7 14 ^h 54 ^m 1 15 ^h 42 ^m 8	0 1 5 9 10 12 0 1	64 85 128 192 77 134 67 37	0 1 4 6 6 6 0 1	144 99 98 119 42 68 35 19	249.1 250.5 249.2 250.8 251.5 253.0 253.1 254.5	+12.1 +11.9 +13.5 +13.5 +13.2 +13.7 +12.7 +13.0	—78.0 —65.6 —49.7 —35.7 —22.4 —7.7 +7.5 +20.6								

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Areas and Heliographic Positions of Groups of Sun Spots—continued.																	
Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.	Date. Greenwich Civil Time.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
		Umbra.	Whole Spot.	Umbra.	Whole Spot.						Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1747. Four small faint spots on August 13, three being measured together; of these one has disappeared by August 14, and the other two are measured separately.									Group 1752. A small spot.								
1885. _d Aug. 13 ⁴ 07 14 ⁵ 41		0 6	26 60	0 3	16 32	226 ³ 226 ⁵	— 8 ⁷ — 9 ¹	— 34 ⁴ — 19 ¹	1885. _d Aug. 19 ⁴ 75		1	4	1	4	233 ⁹	— 9 ⁸	+ 53 ³
Means ...		...	...	2	24	226 ⁴ 0	— 8 ⁹ 0	...	Means ...		...	...	1	4	233 ⁹	— 9 ⁸	...
Group 1748. A regular spot.									Group 1753. Two well-defined spots.								
Aug. 14 ⁵ 41 15 ⁴ 28 16 ⁴ 07 17 ⁴ 30 18 ¹ 191 19 ⁴ 75 20 ⁴ 92 21 ⁴ 92 22 ⁴ 99 23 ² 11 24 ⁵ 77 25 ⁴ 59		18 31 48 56 105 104 62 68 58 51 7 5	111 203 320 395 435 465 426 331 351 280 137 53	31 35 38 36 62 55 34 39 37 37 8 10	198 226 257 257 256 249 230 189 244 205 150 94	174 ³ 173 ⁶ 173 ⁴ 173 ¹ 172 ⁹ 172 ⁸ 173 ³ 173 ⁰ 172 ⁹ 173 ³ 172 ⁸ 172 ⁶	— 13 ⁸ — 14 ² — 14 ⁰ — 14 ¹ — 14 ¹ — 14 ¹ — 13 ⁹ — 13 ⁸ — 14 ² — 13 ⁴ — 14 ⁰ — 13 ⁶	— 71 ³ — 60 ³ — 47 ⁶ — 34 ³ — 24 ⁵ — 7 ⁸ + 6 ² + 19 ² + 32 ⁴ + 42 ² + 59 ⁸ + 71 ²	Aug. 20 ⁴ 92		16	94	16	94	223 ³	— 13 ⁸	+ 56 ²
Means ...		...	...	35	213	173 ¹ 7	— 13 ⁹ 3	...	Means ...		...	...	16	94	223 ³	— 13 ⁸	...
Group 1749. A small spot.									Group 1754. Two large spots, <i>a</i> and <i>b</i> , with smaller spots between them. <i>b</i> decreases in size, and is not seen on September 1, by which day the group as a whole has very much increased in size, and consists of several fine spots, which have become two large spots with small companions by September 2.								
Aug. 16 ⁴ 07		0	17	2	9	231 ⁹	— 9 ⁰	+ 10 ⁹	Aug. 23 ² 11 24 ⁵ 77 25 ⁴ 59 26 ⁴ 57 27 ⁵ 09 28 ⁴ 80 29 ⁴ 44 30 31 ² 10		19 40 32 43 45 10 27 30 89	136 418 465 439 450 332 266 No photograph. 426	35 39 24 26 25 5 14 (35) 55	280 426 360 275 248 175 141 201 261	57 ⁰ 54 ⁶ 54 ⁸ 55 ⁷ 57 ² 58 ⁴ 58 ⁷ 57 ³ 55 ⁹	— 11 ⁰ — 9 ³ — 9 ³ — 9 ³ — 10 ⁶ — 10 ⁷ — 10 ⁷ — 10 ⁵ — 10 ²	— 74 ¹ — 58 ⁴ — 46 ⁶ — 32 ⁶ — 17 ¹ — 3 ¹ + 10 ⁰ + 20 ³ + 30 ⁵
Means ...		...	...	2	9	231 ⁹	— 9 ⁰	...	Sept. 1 ³ 99 2 ³ 91 3 ⁴ 23		44 107 16	564 815 263	34 113 32	436 876 494	56 ⁸ 56 ⁶ 55 ⁹	— 9 ⁸ — 10 ¹ — 9 ⁶	+ 47 ¹ + 60 ⁰ + 72 ⁹
Aug. 18 ¹ 191 19 ⁴ 75 20 ⁴ 92 21 ⁴ 92 22 ⁴ 99 23 ² 11		13 19 0 4 0 12	65 58 31 23 3 61	6 9 0 3 0 12	32 29 16 14 2 60	187 ⁸ 188 ⁷ 187 ¹ 190 ² 190 ⁹ 190 ⁹	+ 6 ⁰ + 5 ⁴ + 5 ¹ + 6 ² + 6 ⁶ + 6 ⁷	— 9 ⁶ + 8 ¹ + 20 ⁰ + 36 ⁴ + 50 ⁴ + 59 ⁸	Means ...		...	...	10	176	111 ⁴ 3	— 14 ⁸ 5	...
Group 1750. A group of faint spots. Only one spot is seen on August 20.									Group 1755. Two small spots. They have greatly increased in size, and a new spot has appeared by August 28.								
Aug. 18 ¹ 191 19 ⁴ 75 20 ⁴ 92 21 ⁴ 92 22 ⁴ 99 23 ² 11		13 19 0 4 0 12	65 58 31 23 3 61	6 9 0 3 0 12	32 29 16 14 2 60	187 ⁸ 188 ⁷ 187 ¹ 190 ² 190 ⁹ 190 ⁹	+ 6 ⁰ + 5 ⁴ + 5 ¹ + 6 ² + 6 ⁶ + 6 ⁷	— 9 ⁶ + 8 ¹ + 20 ⁰ + 36 ⁴ + 50 ⁴ + 59 ⁸	Aug. 26 ⁴ 57 27 ⁵ 09 28 ⁴ 80 29 ⁴ 44		0 24 11 12	60 121 276 285	0 16 9 14	35 81 238 350	110 ⁹ 111 ⁹ 111 ³ 111 ⁶	— 14 ⁶ — 14 ⁹ — 15 ¹ — 14 ⁸	+ 22 ⁶ + 37 ⁶ + 49 ⁸ + 62 ⁹
Means ...		...	...	5	26	189 ² 7	+ 6 ⁰ 0	...	Means ...		...	...	10	176	111 ⁴ 3	— 14 ⁸ 5	...
Group 1751. A group of four faint spots.									Group 1756. A well-defined spot with three fainter spots preceding on August 28. The preceding spot increases in size after August 29. One of the middle spots has disappeared by September 1, and the other has broken into a number of very small spots by September 2.								
Aug. 18 ¹ 191 19 ⁴ 75		24 5	56 35	14 3	33 18	166 ² 165 ³	+ 20 ³ + 20 ⁵	— 31 ² — 15 ³	Aug. 27 ⁵ 09 28 ⁴ 80 29 ⁴ 44 30 31 ² 10		11 9 32 30 102	195 235 330 No photograph. 636	13 8 20 (37) 53	212 183 204 266 328	12 ³ 13 ² 14 ³ 16 ¹ 17 ⁹	— 5 ¹ — 4 ⁹ — 4 ⁵ — 4 ⁷ — 4 ⁹	— 62 ⁰ — 48 ³ — 34 ⁴ — 21 ⁰ — 7 ⁵
Means ...		...	...	9	26	165 ⁷ 5	+ 20 ⁴ 0	...	Sept. 1 ³ 99 2 ³ 91 3 ⁴ 23		39 57 46	355 552 484	20 32 30	185 315 324	20 ⁸ 21 ⁴ 22 ⁷	— 4 ⁸ — 5 ¹ — 4 ⁷	+ 11 ¹ + 24 ⁸ + 39 ⁷

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1756—continued.								
1885. _a								
Sept. 4 ^h 52 ^m 5	22	359	19	320	22°9	— 4°9	+ 54°5	
5 ^h 41 ^m 4	8	240	10	316	23°5	— 4°4	+ 66°8	
6 ^h 40 ^m 8	2	115	6	327	22°7	— 4°4	+ 79°2	
7 ^h 27 ^m 3	0	12	0	43	13°4	— 5°6	+ 81°2	
Means	...	...	21	252	18°43	— 4°83	...	
Group 1756*. A small spot.								
Aug. 27 ^h 50 ^m 9	0	31	0	37	8°2	+ 6°1	— 66°1	
28 ^h 48 ^m 0	0	29	0	24	7°8	+ 6°6	— 55°7	
Means	...	...	0	31	8°00	+ 6°35	...	
Group 1757. Two spots which increase in size and have coalesced by September 3. This spot has divided into three by September 5, but is measured as one except on September 9. Small companions are seen on August 29, September 5 and 7.								
Aug. 28 ^h 48 ^m 0	10	123	23	337	34°0'9	+ 10°7	— 80°6	
29 ^h 44 ^m 4	29	300	36	374	34°1'3	+ 11°2	— 67°4	
30 ^m	No photograph.	(55	433	34°1'0	+ 10°0	— 56°1		
31 ^h 21 ^m 0	106	702	74	491	34°0'6	+ 8°7	— 44°8	
Sept. 1 ^h 39 ^m 9	73	971	41	552	34°0'9	+ 10°6	— 28°8	
2 ^h 39 ^m 1	135	1127	71	592	34°0'7	+ 10°6	— 15°9	
3 ^h 42 ^m 3	64	795	32	399	34°1'1	+ 10°7	— 1°9	
4 ^h 52 ^m 5	53	718	27	368	34°1'0	+ 10°3	+ 12°6	
5 ^h 41 ^m 4	68	456	37	252	34°1'3	+ 10°6	+ 24°6	
6 ^h 40 ^m 8	37	308	23	194	34°1'3	+ 10°5	+ 37°8	
7 ^h 27 ^m 3	49	298	38	229	34°2'0	+ 9°9	+ 49°8	
8 ^h 40 ^m 4	19	176	21	199	34°1'7	+ 9°9	+ 64°4	
9 ^h 41 ^m 0	9	63	19	130	34°1'0	+ 10°4	+ 77°0	
Means	...	...	38	350	34°1'14	+ 10°32	...	
Group 1758. Two very small spots.								
Aug. 29 ^h 44 ^m 4	0	21	0	10	45°1	— 6°8	— 3°6	
Means	...	...	0	10	45°1	— 6°8	...	
Group 1759. A regular spot, α . A small companion is seen on September 3, and another on September 7.								
Sept. 1 ^h 39 ^m 9	0	29	0	69	293°7	— 12°1	— 76°0	
2 ^h 39 ^m 1	16	87	20	112	291°9	— 12°1	— 64°7	
3 ^h 42 ^m 3	21	136	17	114	292°9	— 12°1	— 50°1	
4 ^h 52 ^m 5	18	154	12	101	292°8	— 12°1	— 35°6	
5 ^h 41 ^m 4	21	197	12	114	293°1	— 12°3	— 23°6	
6 ^h 40 ^m 8	18	205	10	111	293°2	— 12°3	— 10°3	
7 ^h 27 ^m 3	24	175	13	94	293°5	— 12°4	+ 1°3	
8 ^h 40 ^m 4	22	134	12	75	293°7	— 12°6	+ 16°4	

Date.		Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
Greenwich Civil Time.		Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1759—continued.								
1885. _a								
Sept. 9 ^h 41 ^m 0	23	105	14	64	293°7	— 12°7	+ 29°7	
10 ^h 26 ^m 0	32	116	23	82	293°4	— 12°6	+ 40°6	
11 ^h 20 ^m 8	10	69	9	64	294°6	— 12°7	+ 54°4	
12 ^h 22 ^m 9	1	38	1	54	293°9	— 13°0	+ 67°3	
Means	...	...	12	88	293°37	— 12°42	...	
Group 1760. A small spot on September 4, which has divided into two by the next day.								
Sept. 4 ^h 52 ^m 5	0	43	0	23	327°8	— 11°7	— 0°6	
5 ^h 41 ^m 4	28	236	15	127	327°8	— 11°5	+ 11°1	
6 ^h 40 ^m 8	0	107	0	62	328°0	— 11°3	+ 24°5	
7 ^h 27 ^m 3	8	66	5	43	328°3	— 11°8	+ 36°1	
Means	...	...	5	64	327°98	— 11°58	...	
Group 1761. Three small spots.								
Sept. 5 ^h 41 ^m 4	0	39	0	21	304°9	— 12°2	— 11°8	
Means	...	...	0	21	304°9	— 12°2	...	
Group 1762. A very small spot.								
Sept. 5 ^h 41 ^m 4	0	10	0	6	286°1	— 11°2	— 30°6	
Means	...	...	0	6	286°1	— 11°2	...	
Group 1763. A very large spot. The following portion, which is of irregular shape, has become detached by September 13 and 14, and is measured in five portions. These have disappeared by September 15. The nucleus has divided into two portions by September 14, and the whole spot by September 17, although still measured as one. Some small spots are seen near the principal spots on September 14, 18, and 19.								
Sept. 8 ^h 40 ^m 4	26	246	52	498	203°8	— 13°4	— 73°5	
9 ^h 41 ^m 0	59	506	66	566	203°8	— 13°5	— 60°2	
10 ^h 26 ^m 0	164	832	136	697	203°1	— 13°3	— 49°7	
11 ^h 20 ^m 8	219	885	147	592	203°7	— 13°1	— 36°5	
12 ^h 22 ^m 9	154	1149	90	671	202°6	— 12°8	— 24°0	
13 ^h 17 ^m 8	194	1294	106	703	202°5	— 13°2	— 11°7	
14 ^h 55 ^m 8	128	1195	69	644	202°7	— 13°2	+ 6°6	
15 ^h 38 ^m 9	95	816	54	464	203°3	— 13°6	+ 18°2	
16 ^h 57 ^m 2	90	741	58	479	203°0	— 13°6	+ 33°6	
17 ^h 18 ^m 0	117	616	85	448	203°0	— 14°2	+ 41°7	
18 ^h 50 ^m 7	51	375	55	403	203°1	— 14°1	+ 59°3	
19 ^h 21 ^m 4	40	338	62	533	203°2	— 14°6	+ 68°7	
Means	...	...	82	558	203°15	— 13°55	...	

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1764. A group of faint spots.							
1885. _d Sept. 13 ¹⁷ 8 14 ⁵⁵ 8	0 0	85 137	0 0	64 162	256.6 257.4	-16.3 -15.7	+42.4 +61.3
Means ...	...	...	0	113	257.00	-16.00	...
Group 1765. Two faint spots, measured as one, on September 16. On the next day the group appears as three well-defined spots with some very small companions. On September 19 only three spots are seen.							
Sept. 16 ⁵⁷ 2 17 ¹⁸ 0 18 ⁵⁰ 7 19 ²¹ 4	6 22 16 3	61 127 151 53	5 16 9 2	50 88 87 30	122.4 122.6 123.9 121.0	-15.3 -14.9 -14.6 -15.2	-47.0 -38.7 -19.9 -13.5
Means ...	...	...	8	64	122.48	-15.00	...
Group 1766. A small spot on September 19. A second is seen near it on September 21. On September 22 the group consists of four small spots which are measured in pairs.							
Sept. 19 ²¹ 4 20 ⁵⁶ 1 21 ⁴⁴ 3 22 ⁴⁴ 1	2 0 0 22	22 5 32 110	2 0 0 11	16 3 17 57	85.5 86.4 83.3 83.4	+16.3 +16.7 +16.1 +16.9	-49.0 -30.5 -21.8 -8.4
Means ...	...	...	3	23	84.65	+16.50	...
Group 1767. A large regular spot. A small spot is seen near it on September 25.							
Sept. 21 ⁴⁴ 3 22 ⁴⁴ 1 23 ⁴² 8 24 ⁵⁷ 4 25 ⁴⁰ 7 26 ⁴⁴ 7 27 ¹³ 2 28 ⁴⁶ 9 29 ¹⁶ 4 30 ¹⁹ 5	12 14 12 4 9 18 66 27 35 33	91 146 142 91 273 250 279 228 264 197	27 16 10 3 5 9 34 14 20 21	202 168 114 57 153 129 142 120 149 128	28.7 28.3 28.2 28.3 28.4 28.9 28.3 28.8 28.9 28.2	-2.9 -3.1 -2.7 -2.4 -2.4 -2.1 -2.1 -2.4 -2.8 -2.7	-76.4 -63.5 -50.6 -35.4 -24.3 -10.1 -1.7 +16.4 +25.6 +38.6
Oct. 1 ³⁸ 8 2 ¹⁷ 1 3 ³⁸ 1	7 15 0	107 91 13	6 19 0	93 110 36	28.1 28.6 26.6	-2.7 -3.1 -2.9	+54.3 +65.1 +79.0
Means ...	...	...	14	123	28.33	-2.64	...
Group 1768. A large regular spot.							
1885. _d Sept. 21 ⁴⁴ 3 22 ⁴⁴ 1 23 ⁴² 8 24 ⁵⁷ 4 25 ⁴⁰ 7 26 ⁴⁴ 7 27 ¹³ 2 28 ⁴⁶ 9 29 ¹⁶ 4 30 ¹⁹ 5	0 15 9 0 65 45 95 62 66 66	65 150 120 154 354 432 440 406 418 320	0 20 8 0 37 23 48 32 35 39	197 201 106 101 202 224 224 208 222 191	23.9 23.2 23.1 23.0 23.3 23.3 22.8 23.3 23.5 23.3	+7.3 +7.0 +7.1 +7.2 +7.4 +7.5 +7.7 +7.8 +7.5 +7.7	-81.2 -68.6 -55.7 -40.7 -29.4 -15.7 -7.2 +10.9 +20.2 +33.7
Oct. 1 ³⁸ 8 2 ¹⁷ 1 3 ³⁸ 1	20 33 0	246 206 61	15 32 0	189 202 118	23.4 23.5 23.3	+7.7 +7.5 +7.8	+49.6 +60.0 +75.7
Means ...	...	...	22	183	23.30	+7.48	...
Group 1769. A number of small spots irregularly distributed. The group is measured in two clusters on September 25, but it becomes more scattered on the succeeding days until September 28, after which date many of the spots disappear.							
Sept. 25 ⁴⁰ 7 26 ⁴⁴ 7 27 ¹³ 2 28 ⁴⁶ 9 29 ¹⁶ 4 30 ¹⁹ 5	0 7 44 15 25 7	38 139 166 143 138 17	0 4 24 8 13 3	27 82 91 73 71 9	7.7 8.4 7.8 8.7 8.6 8.0	+16.6 +16.8 +17.8 +17.1 +17.4 +17.3	-45.0 -30.6 -22.2 -3.7 +5.3 +18.4
Means ...	...	...	9	59	8.20	+17.17	...
Group 1770. A regular spot. A very small spot is seen near it on September 28.							
Sept. 25 ⁴⁰ 7 26 ⁴⁴ 7 27 ¹³ 2 28 ⁴⁶ 9 29 ¹⁶ 4 30 ¹⁹ 5	6 10 26 17 35 41	89 87 154 143 194 175	8 9 19 10 19 20	117 75 113 81 103 88	344.4 344.1 343.1 344.2 344.3 344.5	+12.1 +12.1 +12.3 +12.1 +12.0 +12.2	-68.3 -54.9 -46.9 -28.2 -19.0 -5.1
Oct. 1 ³⁸ 8 2 ¹⁷ 1 3 ³⁸ 1 4 ⁵⁶ 7 5 ²⁰ 0	14 28 10 6 2	162 145 112 38 16	7 15 6 5 2	83 78 71 32 17	345.1 345.2 345.2 345.2 345.3	+12.0 +12.0 +11.8 +11.7 +11.4	+11.3 +21.7 +37.6 +53.3 +61.7
Means ...	...	...	11	78	344.60	+11.97	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1771. A small spot.							
1885. _d Sept. 26.447	0	27	0	16	15.9	- 8.1	-23.1
27.132	8	24	4	13	15.4	- 7.8	-14.6
28.469	0	12	0	6	15.9	- 8.0	+ 3.5
29.164	3	18	2	9	16.0	- 8.5	+12.7
Means ...	...	...	2	11	15.80	- 8.10	...
Group 1772. A small spot.							
Sept. 28.469	0	20	0	10	25.7	+13.4	+13.3
Means ...	...	...	0	10	25.7	+13.4	...
Group 1773. Two large regular spots, <i>a</i> and <i>b</i> . Several small spots are also seen near <i>b</i> .							
Oct. 1.388	28	276	50	510	262.5	-16.9	-71.3
2.171	125	606	146	727	261.8	-16.9	-61.7
3.381	111	933	87	745	261.7	-16.5	-45.9
4.567	154	971	98	619	261.7	-16.6	-30.2
5.200	207	1156	122	680	261.2	-16.5	-22.4
6.398	171	1135	92	619	261.3	-16.5	- 6.4
7.417	158	1054	86	576	261.8	-16.4	+ 7.5
8.184	173	1051	97	597	260.8	-16.7	+16.6
9.446	117	750	78	495	261.5	-16.6	+34.0
10.151	118	709	89	532	261.4	-16.6	+43.1
11.162	95	537	98	543	261.4	-16.8	+56.4
12.268	59	263	106	465	261.1	-16.7	+70.8
13.155	3	49	8	134	255.5	-18.9	+76.9
Means ...	...	...	89	557	261.05	-16.82	...
Group 1774. Two spots, <i>a</i> and <i>b</i> . <i>a</i> has increased in size by October 5, and become a well-defined regular spot; <i>b</i> has broken up and forms on October 5, and the succeeding days a train of small spots following <i>a</i> . <i>a</i> has broken up by October 8, and the group consists on October 9, and the succeeding days, of a number of small spots irregularly distributed.							
Oct. 4.567	13	114	7	66	262.7	- 1.2	-29.2
5.200	51	258	28	138	263.6	- 1.0	-20.0
6.398	20	246	10	124	265.0	- 1.0	- 2.7
7.417	34	258	18	132	266.3	- 0.5	+12.0
8.184	37	145	20	78	264.9	- 0.9	+20.7
9.446	0	87	0	55	265.6	- 0.8	+38.1
10.151	10	74	7	56	266.5	- 0.5	+48.2
11.162	28	74	29	76	265.5	- 1.4	+60.5
12.268	20	101	35	185	264.0	- 3.9	+73.7
Means ...	...	...	16	101	264.90	- 1.24	...
Group 1775. A regular spot. It has broken up into several small spots by October 13.							
1885. _d Oct. 5.200	8	21	41	110	200.7	-13.3	-82.9
6.398	11	91	15	124	201.4	-13.4	-66.3
7.417	24	141	22	127	201.2	-13.6	-53.1
8.184	37	177	27	130	200.6	-13.3	-43.6
9.446	10	145	6	86	200.9	-13.6	-26.6
10.151	10	164	5	92	200.6	-13.6	-17.7
11.162	24	135	13	73	200.5	-14.1	- 4.5
12.268	13	81	7	44	200.0	-14.7	+ 9.7
13.155	12	72	7	42	199.6	-14.7	+21.0
14.151	4	28	3	19	200.4	-15.1	+34.9
Means ...	...	...	15	85	200.59	-13.94	...
Group 1776. A small spot. Two others are seen near it on October 11.							
Oct. 7.417	0	20	0	24	191.1	-11.6	-63.2
8.184	7	22	6	19	191.3	-11.7	-52.9
9.446	4	17	3	11	193.0	-12.5	-34.5
10.151	3	9	2	5	193.5	-12.4	-24.8
11.162	1	23	1	12	192.0	-12.6	-13.0
Means ...	...	...	2	14	192.18	-12.16	...
Group 1777. A small spot with a very small companion on the first day.							
Oct. 17.212	0	18	0	25	55.5	+ 6.5	-69.6
18.147	3	12	2	11	57.7	+ 6.3	-55.0
Means ...	...	...	1	18	56.60	+ 6.40	...
Group 1778. A spot which has very much decreased in size by October 18.							
Oct. 17.212	5	57	8	84	54.7	+14.9	-70.4
18.147	2	4	2	4	54.8	+15.1	-57.9
Means ...	...	...	5	44	54.75	+15.00	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1779.							
A large regular spot, <i>a</i> , followed by a stream of smaller spots. Of these, two, <i>b</i> and <i>c</i> , are of considerable size. <i>a</i> moves rapidly forward in longitude on October 17, 18, and 19; and more slowly subsequently. It decreases in size until October 21, but has slightly recovered by the succeeding day. It is very much larger on October 26 than on October 25 and 27. <i>b</i> and <i>c</i> diminish in size from day to day, <i>c</i> having disappeared by October 23. The smaller spots of the group undergo constant changes.							
1885. ^a Oct.							
17 ^h 21 ^m 2	0	59	0	258	40 ^o 8	+ 6 ^o 8	- 84 ^o 3
18 ^h 14 ^m 7	51	351	82	652	37 ^o 8	+ 7 ^o 8	- 74 ^o 9
19 ^h 41 ^m 6	51	606	45	538	40 ^o 1	+ 7 ^o 4	- 55 ^o 9
20 ^h 50 ^m 9	73	668	49	443	40 ^o 5	+ 8 ^o 0	- 41 ^o 1
21 ^h 27 ^m 2	81	663	46	388	41 ^o 0	+ 7 ^o 9	- 30 ^o 5
22 ^h 41 ^m 8	65	732	33	380	42 ^o 6	+ 7 ^o 3	- 13 ^o 8
23 ^h 16 ^m 5	90	779	45	389	42 ^o 6	+ 7 ^o 2	- 4 ^o 0
24 ^h 17 ^m 5	119	613	61	311	43 ^o 7	+ 7 ^o 1	+ 10 ^o 4
25 ^h 55 ^m 8	18	371	11	219	46 ^o 5	+ 6 ^o 8	+ 31 ^o 4
26 ^h 27 ^m 3	61	410	40	272	46 ^o 6	+ 6 ^o 4	+ 41 ^o 0
27 ^h 42 ^m 2	31	232	27	206	46 ^o 5	+ 6 ^o 7	+ 56 ^o 1
28 ^h 43 ^m 6	6	121	9	164	45 ^o 8	+ 7 ^o 1	+ 68 ^o 8
Means	...	...	37	352	42 ^o 88	+ 7 ^o 21	...
Group 1780.							
A very small spot on October 18. Two small spots on October 19.							
Oct.							
18 ^h 14 ^m 7	0	8	0	5	151 ^o 1	- 8 ^o 7	+ 38 ^o 4
19 ^h 41 ^m 6	1	29	2	27	152 ^o 0	- 8 ^o 6	+ 56 ^o 0
Means	...	...	1	16	151 ^o 55	- 8 ^o 65	...
Group 1781.							
A very small spot.							
Oct.							
18 ^h 14 ^m 7	4	11	2	6	83 ^o 8	+ 13 ^o 4	- 28 ^o 9
Means	...	...	2	6	83 ^o 8	+ 13 ^o 4	...
Group 1782.							
Two spots, <i>a</i> and <i>b</i> . They have moved away from each other and diminished in size by October 20. <i>b</i> has disappeared by October 21.							
Oct.							
19 ^h 41 ^m 6	5	106	4	77	139 ^o 5	- 10 ^o 6	+ 43 ^o 5
20 ^h 50 ^m 9	0	29	0	29	139 ^o 2	- 10 ^o 5	+ 57 ^o 6
21 ^h 27 ^m 2	0	18	0	23	141 ^o 9	- 10 ^o 5	+ 70 ^o 4
Means	...	...	1	43	140 ^o 20	- 10 ^o 53	...
Group 1783.							
A regular spot, <i>a</i> , followed by several small spots. <i>a</i> diminishes in size after October 26, and the small spots have all disappeared by October 28.							
1885. ^a Oct.							
20 ^h 50 ^m 9	0	19	0	47	3 ^o 7	- 3 ^o 1	- 77 ^o 9
21 ^h 27 ^m 2	10	145	15	245	359 ^o 4	- 4 ^o 0	- 72 ^o 1
22 ^h 41 ^m 8	64	326	57	291	1 ^o 2	- 3 ^o 9	- 55 ^o 2
23 ^h 16 ^m 5	79	439	56	311	2 ^o 2	- 3 ^o 5	- 44 ^o 4
24 ^h 17 ^m 5	104	475	61	279	2 ^o 9	- 3 ^o 7	- 30 ^o 4
25 ^h 55 ^m 8	51	542	27	281	4 ^o 4	- 3 ^o 9	- 10 ^o 7
26 ^h 27 ^m 3	56	444	29	226	4 ^o 4	- 3 ^o 9	- 1 ^o 2
27 ^h 42 ^m 2	63	404	32	210	4 ^o 9	- 3 ^o 9	+ 14 ^o 5
28 ^h 43 ^m 6	31	260	18	150	6 ^o 0	- 3 ^o 6	+ 29 ^o 0
29 ^h 43 ^m 1	13	191	9	131	5 ^o 8	- 3 ^o 7	+ 41 ^o 9
30 ^h 17 ^m 0	22	158	18	130	6 ^o 3	- 4 ^o 3	+ 52 ^o 0
31 ^h 15 ^m 5	17	111	21	132	5 ^o 9	- 4 ^o 5	+ 64 ^o 6
Nov. 1 ^h 40 ^m 7	0	17	0	58	6 ^o 0	- 4 ^o 0	+ 81 ^o 3
Means	...	...	26	192	4 ^o 08	- 3 ^o 85	...
Group 1784.							
A very small spot on October 22, three spots on October 23, six spots, measured in three clusters, on October 24. On October 25 and the succeeding days the group consists of a stream of small spots, <i>a</i> and <i>b</i> , the first and last of the stream, being the largest. <i>b</i> has broken up and diminished in size by October 27.							
Oct.							
22 ^h 41 ^m 8	0	6	0	7	355 ^o 7	- 17 ^o 4	- 60 ^o 7
23 ^h 16 ^m 5	15	73	14	63	355 ^o 0	- 15 ^o 0	- 51 ^o 6
24 ^h 17 ^m 5	42	190	29	130	354 ^o 7	- 15 ^o 3	- 38 ^o 6
25 ^h 55 ^m 8	29	207	16	118	356 ^o 6	- 15 ^o 2	- 18 ^o 5
26 ^h 27 ^m 3	29	319	15	172	356 ^o 0	- 15 ^o 3	- 9 ^o 6
27 ^h 42 ^m 2	44	243	23	131	357 ^o 8	- 15 ^o 1	+ 7 ^o 4
28 ^h 43 ^m 6	21	159	11	91	358 ^o 4	- 14 ^o 9	+ 21 ^o 4
29 ^h 43 ^m 1	32	149	20	96	357 ^o 1	- 15 ^o 2	+ 33 ^o 2
30 ^h 17 ^m 0	43	276	32	198	355 ^o 6	- 15 ^o 6	+ 41 ^o 3
31 ^h 15 ^m 5	44	305	40	273	354 ^o 1	- 15 ^o 8	+ 52 ^o 8
Nov. 1 ^h 40 ^m 7	7	92	9	132	352 ^o 4	- 14 ^o 7	+ 67 ^o 7
Means	...	...	19	128	355 ^o 76	- 15 ^o 41	...
Group 1785.							
A small spot.							
Oct.							
23 ^h 16 ^m 5	0	8	0	9	108 ^o 1	+ 14 ^o 0	+ 61 ^o 5
Means	...	...	0	9	108 ^o 1	+ 14 ^o 0	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1786.							
Two large spots, <i>a</i> and <i>b</i> , on October 25. Both have broken up by October 27, though on that day (as also on October 28) the spots are grouped for measurement so as to correspond nearly with <i>a</i> and <i>b</i> . On October 29 and the succeeding days the group has broken up further and spread out into a long stream of spots, but the largest portions of <i>a</i> and <i>b</i> are still recognisable and form well-defined spots. The letters are therefore still attached to them. Only <i>a</i> remains after November 1.							
1885. _d					°	°	°
Oct. 25.558	10	243	14	422	303.1	— 8.6	— 72.0
26.273	80	624	92	719	302.5	— 8.6	— 63.1
27.422	71	783	54	588	303.9	— 8.6	— 46.5
28.436	57	698	35	428	304.2	— 8.8	— 32.8
29.431	66	775	37	424	304.5	— 8.9	— 19.4
30.170	71	604	36	316	304.0	— 9.0	— 10.3
31.155	70	452	36	233	304.2	— 9.5	+ 2.9
Nov. 1.407	21	248	11	138	305.3	— 9.7	+ 20.6
2.422	12	120	7	75	305.8	— 9.4	+ 34.5
3.132	24	149	17	106	305.3	— 9.9	+ 43.4
4.114	10	44	9	42	306.0	— 9.9	+ 57.0
Means ...	...	...	32	317	304.44	— 9.17	...
Group 1787.							
A small spot.							
Oct. 27.422	0	5	0	9	280.3	— 10.4	— 70.1
28.436	0	5	0	5	280.0	— 10.7	— 57.0
Means ...	...	...	0	7	280.15	— 10.55	...
Group 1788.							
A large regular spot, <i>a</i> . Some very small spots are seen near it on November 3-4.							
Oct. 28.436	12	70	24	146	262.8	— 15.7	— 74.2
29.431	29	159	34	186	261.7	— 15.6	— 62.2
30.170	65	269	59	247	260.5	— 15.4	— 53.8
31.155	60	315	44	229	260.4	— 15.1	— 40.9
Nov. 1.407	45	335	26	195	260.3	— 15.1	— 24.4
2.422	59	408	32	219	260.3	— 14.6	— 11.0
3.132	69	366	36	193	259.8	— 14.9	— 2.1
4.114	83	389	44	210	260.0	— 14.6	+ 11.0
5.122	75	325	44	190	260.1	— 14.9	+ 24.3
6.129	49	260	33	175	260.2	— 14.7	+ 37.7
7.130	41	192	35	164	260.3	— 15.2	+ 51.0
8.121	28	126	34	154	260.1	— 15.0	+ 63.9
9.139	12	61	30	155	260.0	— 15.2	+ 77.3
Means ...	...	...	37	189	260.50	— 15.08	...
Group 1789.							
A short stream of very small spots on November 1. Only one spot is seen on November 2. The group consists of a number of very small scattered spots on November 3. Only one spot is seen on November 4. The group is not seen at all on November 5. On November 6 and 7 the group consists of a regular spot, <i>a</i> , followed at a little distance by three very small spots close together, which are measured as one.							
1885. _d					°	°	°
Nov. 1.407	0	37	0	19	270.8	— 1.4	— 13.9
2.422	0	14	0	7	271.8	— 0.4	+ 0.5
3.132	2	30	1	14	271.2	— 1.8	+ 9.3
4.114	0	22	0	12	270.3	— 1.2	+ 21.3
5.122	0	0	0	0	...	...	...
6.129	23	112	18	92	274.3	— 2.9	+ 51.8
7.130	13	68	17	87	275.7	— 2.7	+ 66.4
Means ...	...	...	5	33	272.35	— 1.73	...
Group 1790.							
A small spot on November 7. Two other small spots are seen preceding it on November 8. The first of these, <i>a</i> , increases in size very rapidly, and has become a large regular spot by November 10. A great number of smaller spots have appeared by November 9; these follow <i>a</i> at a little distance, but the stream does not lie along a parallel of latitude as is generally the case. They have all disappeared except one spot by November 13. <i>a</i> has partially broken up by November 12.							
Nov. 7.130	8	22	4	12	192.5	— 14.4	— 16.8
8.121	15	70	8	37	194.3	— 14.2	— 1.9
9.139	27	217	15	118	196.5	— 13.8	+ 13.8
10.121	101	606	61	360	196.4	— 13.7	+ 26.6
11.126	50	602	35	413	196.3	— 13.5	+ 39.7
12.142	36	357	32	314	196.2	— 13.4	+ 53.0
13.185	17	103	25	151	198.2	— 12.8	+ 68.7
Means ...	...	...	26	201	195.77	— 13.69	...
Group 1791.							
Two small spots on November 7. Not seen on November 8. Two small spots, <i>a</i> and <i>b</i> , on November 9 and 10. A third, <i>c</i> , is seen on November 11. <i>a</i> moves forward on November 9, 10 and 11.							
Nov. 7.130	5	32	3	18	183.1	— 2.8	— 26.2
8.121	0	0	0	0	...	...	...
9.139	5	33	3	16	184.7	— 2.2	+ 2.0
10.121	12	40	6	22	185.4	— 1.8	+ 15.6
11.126	0	27	0	16	186.4	— 1.9	+ 29.8
Means ...	...	...	2	14	184.90	— 2.18	...

Areas and Heliographic Positions of Groups of Sun Spots—continued.

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1792. A regular spot.							
1885. d Nov. 8.121	4	32	7	50	125.0	+ 6.1	-71.2
9.139	8	44	7	42	124.5	+ 6.4	-58.2
10.121	0	29	0	21	124.8	+ 6.3	-45.0
11.126	2	12	1	7	124.9	+ 6.3	-31.7
12.142	2	10	1	5	125.3	+ 6.0	-17.9
Means ...	...	...	3	25	124.90	+ 6.22	...
Group 1793. A regular spot.							
Nov. 10.121	11	53	33	160	88.8	+14.1	-81.0
11.126	28	127	36	163	89.5	+14.3	-67.1
12.142	39	191	33	163	89.7	+13.8	-53.5
13.185	45	229	30	151	90.2	+13.8	-39.3
14.127	36	226	21	129	90.4	+14.0	-26.6
15.491	28	202	14	104	91.1	+14.3	-7.9
16.428	24	200	12	102	90.9	+14.0	+ 4.3
17.477	24	158	13	85	90.9	+14.0	+18.0
18.419	19	143	11	84	90.8	+13.8	+30.3
19.246	19	120	13	81	90.7	+13.7	+41.2
20.148	15	86	12	72	90.4	+13.4	+52.8
21.453	0	22	0	32	90.5	+13.3	+70.0
Means ...	...	...	19	111	90.33	+13.88	...
Group 1794. A very small spot.							
Nov. 11.126	9	13	5	7	140.9	-12.0	-15.7
12.142	0	6	0	3	141.6	-12.6	-1.6
Means ...	...	...	3	5	141.25	-12.30	...
Group 1795. A very large spot, <i>a</i> , followed by a large spot, <i>b</i> . A number of very small spots are seen in the immediate neighbourhood of <i>a</i> and <i>b</i> , especially on November 16 and 20. <i>b</i> and nearly all the small spots have disappeared by November 21. Both <i>a</i> and <i>b</i> diminish in size after passing the central meridian on November 19.							
Nov. 13.185	63	295	124	647	52.5	+15.5	-77.0
14.127	134	592	146	684	52.9	+15.7	-64.1
15.491	156	948	112	676	54.3	+15.4	-44.7
16.428	152	1161	93	701	54.2	+15.1	-32.4
17.477	187	1315	102	711	53.1	+14.6	-19.8
18.419	196	1287	101	664	52.9	+14.6	-7.6
19.246	123	1105	63	569	52.9	+14.6	+ 3.4

Date, Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1795—continued.							
1885. d Nov. 20.148	172	862	92	460	53.1	+14.7	+15.5
21.453	99	575	62	356	54.4	+14.8	+33.9
22.155	97	478	68	334	54.3	+14.7	+43.1
23.211	75	327	72	314	55.0	+14.1	+57.9
24.153	15	208	22	310	55.2	+14.0	+70.3
Means ...	...	...	88	536	53.73	+14.82	...
Group 1796. Five small spots on November 14, of which four are measured in two pairs. The group lengthens out on the succeeding days, and becomes a straggling stream of small spots. The members of the group change from day to day.							
Nov. 14.127	17	73	12	52	74.4	-17.6	-42.6
15.491	13	122	7	72	74.4	-18.0	-24.6
16.428	36	173	20	94	74.0	-18.2	-12.6
17.477	19	91	10	49	73.5	-19.0	+ 0.6
18.419	4	33	2	18	80.1	-16.2	+19.6
Means ...	...	...	10	57	75.28	-17.80	...
Group 1797. A stream of small spots. Only one spot is seen on November 24. The group is not visible on November 25, but one spot is seen on November 26.							
Nov. 17.477	0	19	0	29	2.8	- 3.6	-70.1
18.419	10	131	9	120	3.6	- 3.6	-56.9
19.246	21	138	14	101	2.9	- 3.5	-46.6
20.148	27	89	16	53	5.3	- 3.3	-32.3
21.453	5	129	2	66	9.7	- 2.9	-10.8
22.155	7	167	4	63	5.1	- 3.7	- 6.1
23.211	0	54	0	28	9.9	- 3.4	+12.8
24.153	0	9	0	5	9.2	- 4.0	+24.3
25.157	0	0	0	0	...	...	...
26.257	0	15	0	10	1.6	- 4.0	+44.4
Means ...	...	...	5	48	5.57	- 3.56	...
Group 1798. Three small spots, of which the two preceding are measured together on November 19. One of this pair has disappeared by November 20, but a small spot has appeared near the following spot, and is measured with it.							
Nov. 19.246	4	76	4	72	107.3	+13.1	+57.8
20.148	0	35	0	54	108.8	+13.0	+71.2
Means ...	...	...	2	63	108.05	+13.05	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued*.

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1799. Three very small spots close together and measured as one.							
1885. _d Nov. 23 ² 11	1	18	1	10	340°0	-11°4	-17°1
Means ...	...	...	1	10	340°0	-11°4	...
Group 1800. A small spot.							
Nov. 26 ² 57	0	17	0	9	312°7	-12°6	-4°5
Means ...	...	...	0	9	312°7	-12°6	...
Group 1801. Two small spots, <i>a</i> and <i>b</i> , on November 28. Only <i>b</i> remains on November 29.							
Nov. 28 ¹ 62 29 ¹ 42	12 4	38 15	7 3	23 11	321°1 319°7	-21°5 -21°5	+29°1 +40°6
Means ...	...	...	5	17	320°40	-21°50	...
Group 1802. Two very small spots, <i>a</i> and <i>b</i> .							
Nov. 28 ¹ 62 29 ¹ 42	1 0	14 12	1 0	6 6	291°8 293°4	-12°7 -12°9	-0°2 +14°3
Means ...	...	...	1	6	292°60	-12°80	...
Group 1803. A number of very small spots on December 2. The preceding spot, <i>a</i> , increases in size on the following days. On December 3 the smaller spots follow it closely in a short stream. On December 4 <i>a</i> alone is seen. On December 5 three spots are seen close to <i>a</i> .							
Dec. 2 ⁴ 47 3 ¹ 83 4 ⁵ 54 5 ² 57	2 20 0 1	77 147 51 68	2 18 0 3	54 125 95 232	277°9 278°7 281°7 279°9	+13°6 +13°8 +14°4 +14°8	+42°3 +52°8 +73°9 +81°3
Means ...	...	...	6	127	279°55	+14°15	...
Group 1804. Two small spots.							
1885. _d Dec. 9 ² 26	3	22	2	17	195°4	-11°7	+49°2
Means ...	...	...	2	17	195°4	-11°7	...
Group 1805. A very small spot.							
Dec. 9 ² 26	0	6	0	5	95°7	-13°1	-50°5
Means ...	...	...	0	5	95°7	-13°1	...
Group 1806. A large regular spot, <i>a</i> , with double nucleus. Small spots are seen near it on December 14-19. <i>a</i> has divided into two distinct spots by December 17. These are not measured separately until December 18, when they are lettered <i>b</i> and <i>c</i> .							
Dec. 10 ⁴ 70 11 ⁴ 06 12 ¹ 93 13 ¹ 94 14 ¹ 57 15 ⁴ 71 16 ⁴ 74 17 ¹ 92 18 ¹ 92 19 ¹ 39 20 ¹ 64 21 ² 79	4 25 30 42 48 49 53 49 32 38 22 4	52 148 233 307 291 280 275 268 183 155 96 59	9 30 27 29 28 26 28 26 18 25 18 5	117 177 205 213 172 148 144 143 105 102 80 74	53°3 53°3 53°6 53°2 53°1 53°7 53°5 53°9 53°3 52°9 53°3 52°4	+15°6 +15°5 +15°5 +15°6 +15°5 +15°3 +15°2 +15°4 +15°5 +14°6 +14°5 +14°4	-76°5 -64°1 -53°6 -40°8 -28°3 -10°3 +2°7 +12°6 +25°2 +37°3 +51°1 +65°0
Means ...	...	...	22	140	53°29	+15°22	...
Group 1807. Two small spots, <i>a</i> and <i>b</i> . <i>b</i> has disappeared by December 13, and another small spot, <i>c</i> , has formed.							
Dec. 12 ¹ 93 13 ¹ 94	3 4	26 37	2 2	16 19	77°9 79°7	-19°2 -17°8	-29°3 -14°3
Means ...	...	...	2	18	78°80	-18°50	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1808. Two small faint spots, <i>a</i> and <i>b</i> .							
1885. _d Dec. 13 ¹⁹⁴ 14 ¹⁵⁷	3 0	29 25	2 0	19 13	54 ⁶ 55 ⁸	— 8 ⁰ — 8 ³	— 39 ⁴ — 25 ⁶
Means ...	...	...	1	16	55 ²⁰	— 8 ¹⁵	...
Group 1809. Two very small spots.							
Dec. 14 ¹⁵⁷	0	8	0	7	23 ⁹	— 3 ⁵	— 57 ⁵
Means ...	...	...	0	7	23 ⁹	— 3 ⁵	...
Group 1810. Two very small spots on December 18. On December 19 and the succeeding days a short stream of spots, of which <i>a</i> and <i>b</i> , the first and last, are the largest. <i>a</i> moves forward rapidly in longitude. Only <i>a</i> and <i>b</i> remain on December 22, and only <i>a</i> on December 23.							
Dec. 18 ¹⁹² 19 ¹³⁹ 20 ¹⁶⁴ 21 ²⁷⁹ 22 ¹⁸⁹ 23 ¹⁴⁹	2 30 31 9 17 0	18 137 168 95 68 23	1 16 18 6 15 0	9 71 95 65 62 37	27 ⁸ 26 ⁵ 28 ⁷ 29 ⁸ 32 ⁴ 34 ⁸	— 11 ⁷ — 11 ⁷ — 11 ¹ — 10 ⁹ — 10 ⁹ — 11 ¹	— 0 ³ + 10 ⁹ + 26 ⁵ + 42 ⁴ + 57 ⁰ + 72 ⁰
Means ...	...	...	9	57	30 ⁰⁰	— 11 ²³	...
Group 1811. A small spot.							
Dec. 19 ¹³⁹	0	10	0	8	67 ⁸	+ 10 ⁸	+ 52 ²
Means ...	...	...	0	8	67 ⁸	+ 10 ⁸	...
Group 1812. Two small spots, <i>a</i> and <i>b</i> . Only <i>b</i> is seen on December 23. <i>b</i> moves rapidly forward in longitude.							
1885. _d Dec. 20 ¹⁶⁴ 21 ²⁷⁹ 22 ¹⁸⁹ 23 ¹⁴⁹	7 0 0 0	30 20 36 8	3 0 0 0	16 13 27 9	25 ² 24 ⁵ 25 ⁰ 24 ²	— 4 ² — 4 ⁸ — 4 ⁶ — 4 ⁷	+ 23 ⁰ + 37 ¹ + 49 ⁶ + 61 ⁴
Means ...	...	...	1	16	24 ⁷³	— 4 ⁵⁸	...
Group 1813. A large regular spot, <i>a</i> . A very small spot is seen near it on December 24 and 25.							
Dec. 20 ¹⁶⁴ 21 ²⁷⁹ 22 ¹⁸⁹ 23 ¹⁴⁹ 24 ⁴⁹⁰ 25 ¹³⁰ 26 ¹⁴³ 27 ¹⁴³ 28 ¹⁴⁴ 29 ⁵¹⁶ 30 ¹²⁷ 31 ¹⁵⁰	15 36 50 66 55 64 72 68 50 29 12 5	102 225 299 290 351 366 355 343 292 147 123 61	30 36 39 43 30 34 38 38 31 25 12 9	211 245 235 189 194 196 189 193 183 123 125 103	287 ⁵ 286 ⁶ 287 ⁷ 287 ⁷ 288 ² 288 ³ 288 ⁵ 288 ⁶ 288 ⁹ 289 ⁰ 288 ⁶ 288 ²	+ 16 ⁷ + 16 ⁶ + 16 ⁸ + 16 ⁹ + 17 ² + 17 ⁴ + 17 ² + 17 ² + 17 ¹ + 17 ⁷ + 17 ⁵ + 17 ²	— 74 ⁷ — 60 ⁸ — 47 ⁷ — 35 ¹ — 16 ⁹ — 8 ⁴ + 5 ¹ + 18 ⁴ + 31 ⁹ + 50 ¹ + 57 ⁷ + 70 ⁷
Means ...	...	...	30	182	288 ¹⁵	+ 17 ¹³	...
Group 1813*. Two very small spots.							
Dec. 21 ²⁷⁹	0	5	0	5	284 ¹	— 6 ⁸	— 63 ³
Means ...	...	...	0	5	284 ¹	— 6 ⁸	...
Group 1814. Two small spots on December 21, one on December 22, three on December 23, two on December 25. None are seen on December 24, but there is a large group of faculae in the place the spots would occupy.							
Dec. 21 ²⁷⁹ 22 ¹⁸⁹ 23 ¹⁴⁹ 24 ⁴⁹⁰ 25 ¹³⁰	0 1 2 0 0	24 17 50 0 30	0 1 1 0 0	13 11 42 0 74	11 ² 16 ² 15 ⁵ ... 15 ³	— 4 ⁴ — 4 ⁴ — 4 ² ... — 3 ⁸	+ 23 ⁸ + 40 ⁸ + 52 ⁷ ... + 78 ⁶
Means ...	...	...	0	28	14 ⁵⁵	— 4 ²⁰	...

Areas and Heliographic Positions of Groups of Sun Spots—*continued.*

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitud. from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1815.							
A regular spot, α , followed by a short stream of small spots. The group diminishes in size from day to day, and all the small spots have disappeared by December 29.							
1885. _d					°	°	°
Dec. 23 ^h 14 ^m 9 ^s	5	53	12	115	246°3	-16°2	-76°5
24 ^h 49 ^m 0 ^s	24	135	23	133	246°2	-16°2	-58°9
25 ^h 13 ^m 0 ^s	42	214	34	176	245°3	-16°3	-51°4
26 ^h 14 ^m 3 ^s	29	220	19	144	244°6	-17°1	-38°8
27 ^h 14 ^m 3 ^s	23	146	13	84	245°6	-16°8	-24°6
28 ^h 14 ^m 4 ^s	12	111	6	58	247°3	-16°7	-9°7
29 ^h 51 ^m 6 ^s	0	51	0	26	247°4	-16°0	+8°5
30 ^h 12 ^m 7 ^s	0	30	0	16	247°6	-16°2	+16°7
Means ...	...	...	13	94	246°29	-16°44	...
Group 1816.							
Two small spots, α and β .							
Dec. 24 ^h 49 ^m 0 ^s	0	31 ^h 11 ^m	0	20	270°1	-1°8	-35°0
25 ^h 13 ^m 0 ^s	1	30	1	16	271°4	-1°9	-25°3
Means ...	...	...	1	18	270°75	-1°85	...

Date. Greenwich Civil Time.	Projected Area of		Area for Group.		Mean Longitude of Group.	Mean Latitude of Group.	Longitude from Central Meridian.
	Umbra.	Whole Spot.	Umbra.	Whole Spot.			
Group 1817.							
Three small spots on December 24. Of these only the first, α , is seen on December 25, but α is followed by two clusters of very small spots on that day. On December 26 only two spots are seen. On December 27 and 28 only one spot is seen.							
1885. _d					°	°	°
Dec. 24 ^h 49 ^m 0 ^s	0	74	0	78	243°5	-8°1	-61°6
25 ^h 13 ^m 0 ^s	8	20	6	17	244°4	-7°3	-52°3
26 ^h 14 ^m 3 ^s	12	40	7	25	246°3	-7°2	-37°1
27 ^h 14 ^m 3 ^s	0	6	0	3	246°0	-7°1	-24°2
28 ^h 14 ^m 4 ^s	0	11	0	5	245°0	-8°7	-12°0
Means ...	...	...	3	26	245°04	-7°68	...
Group 1818.							
A very small spot.							
Dec. 25 ^h 13 ^m 0 ^s	0	6	0	6	355°4	-3°4	+58°7
Means ...	...	...	0	6	355°4	-3°4	...

ROYAL OBSERVATORY, GREENWICH.

TOTAL PROJECTED AREAS
OF
SUN SPOTS AND FACULÆ
FOR EACH DAY
IN THE YEARS
1874-1885.

TOTAL PROJECTED AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY FROM 1874 APRIL 17 TO 1877 DECEMBER 31 DEDUCED FROM THE MEASUREMENTS OF THE PHOTOGRAPHS OF THE SUN TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT THE OBSERVATORY OF HARVARD COLLEGE, CAMBRIDGE, U.S.A., AND AT THE MELBOURNE OBSERVATORY, AUSTRALIA.

The Projected Area is the Area as it is measured on the photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Greenwich Civil Time is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight. The decimal of the day has not been given for days when neither spots nor faculæ were observed on the photographs.

The dates for which no photographic Record is at present available are indicated by the words "No photograph." As these are numerous in the present table, no attempt has been made to supply approximate numbers for them by interpolation from the days immediately before and after those for which photographs are lacking.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1874. ^d				1874. ^d				1874. ^d				1874. ^d			
Apr. 17.5	0	208	0	May 26.4	61	419	1869	July 4.4	288	2414	215	Aug. 12.4	326	2000	2144
18.5	0	117	0	27	No	photo graph.		5	No	photo graph.		13	No	photo graph.	
19	No	photo graph.		28	No	photo graph.		6.5	661	3748	3886	14.5	428	2722	225
20	0	0	0	29	No	photo graph.		7.5	511	3813	2242	15.4	376	2605	265
21	0	0	0	30.5	87	502	0	8.5	551	3904	709	16	No	photo graph.	
22	0	0	0	31	No	photo graph.		9.5	477	3177	379	17.5	336	1922	0
23	0	0	0					10.5	286	2110	0	18	No	photo graph.	
24	No	photo graph.		June 1.5	88	468	0	11	No	photo graph.		19.5	157	1274	0
25	No	photo graph.		2.5	104	580	540	12	No	photo graph.		20.6	205	1604	3353
26	No	photo graph.		3	No	photo graph.		13.5	169	973	584	21.5	185	947	1124
27.6	0	150	0	4.5	86	468	0	14.5	61	398	0	22.5	113	715	316
28.6	53	285	0	5.5	23	361	0	15.4	236	829	1379	23	No	photo graph.	
29.7	53	306	0	6	No	photo graph.		16.5	93	838	2166	24.5	98	616	527
30.6	72	415	0	7	No	photo graph.		17.5	164	1193	0	25.5	81	441	1569
				8	0	0	0	18.5	231	1238	1084	26.4	97	446	1880
				9	0	0	0	19	No	photo graph.		27.5	58	324	2157
May 1.5	62	467	0	10	No	photo graph.		20.5	304	1570	4155	28.4	33	274	2167
2.5	102	563	0	11.5	0	97	0	21.5	321	1317	2790	29.5	44	305	1446
3	No	photo graph.		12.4	0	58	0	22	No	photo graph.		30	No	photo graph.	
4.6	96	877	0	13.4	38	243	0	23.5	194	1299	1011	31.5	0	133	0
5.5	85	748	0	14	No	photo graph.		24.6	141	863	588				
6.4	47	1028	0	15.6	0	215	0	25.5	74	423	785				
7.5	234	1729	0	16	No	photo graph.		26	No	photo graph.		Sept. 1.5	15	152	507
8.6	250	2241	0	17	No	photo graph.		27	No	photo graph.		2.4	19	173	2008
9.5	333	2204	0	18	No	photo graph.		28	No	photo graph.		3	No	photo graph.	
10	No	photo graph.		19.5	53	938	0	29	No	photo graph.		4.6	24	222	1825
11.5	106	1276	667	20	No	photo graph.		30.5	240	1452	1088	5.4	15	109	2884
12	No	photo graph.		21	No	photo graph.		31.4	284	1565	708	6	No	photo graph.	
13	No	photo graph.		22.6	89	899	0					7	No	photo graph.	
14	No	photo graph.		23.5	71	801	0	Aug. 1	No	photo graph.		8	No	photo graph.	
15	No	photo graph.		24.5	32	475	0	2	No	photo graph.		9.6	11	176	247
16.4	47	381	0	25.5	32	361	1601	3.4	368	1975	464	10.4	11	170	251
17	No	photo graph.		26	No	photo graph.		4	No	photo graph.		11	No	photo graph.	
18.4	0	89	0	27.6	54	514	0	5	No	photo graph.		12.4	64	462	2101
19	No	photo graph.		28	No	photo graph.		6.4	304	1528	2403	13	No	photo graph.	
20.4	85	595	0	29.4	160	1353	0	7	No	photo graph.		14.5	16	63	6045
21.6	10	426	0	30.4	225	1974	600	8.5	230	1317	2049	15.5	0	35	1192
22.5	35	539	0					9	No	photo graph.		16	No	photo graph.	
23	No	photo graph.		July 1	No	photo graph.		10.4	214	1247	4180	17	No	photo graph.	
24	No	photo graph.		2.5	147	1205	3830	11.5	281	1796	3114	18	No	photo graph.	
25	No	photo graph.		3.5	73	907	837					19.5	0	25	543

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.
1874. ^d				1874. ^d				1875. ^d				1875. ^d			
Sept. 20	No	photograph.		Nov. 17.6	109	466	0	Jan. 1	No	photograph.		Mar. 1.1	146	797	1400
21	No	photograph.		18	No	photograph.		2.5	53	355	0	2.2	99	533	1064
22.5	133	658	781	19	No	photograph.		3	No	photograph.		3.3	31	236	347
23	No	photograph.		20.5	147	919	1180	4	No	photograph.		4	No	photograph.	
24.4	150	846	673	21	No	photograph.		5.6	19	87	1342	5.4	33	186	420
25.4	166	895	609	22	No	photograph.		6.5	0	0	607	6.1	34	299	412
26.5	159	823	776	23.5	93	637	1827	7	No	photograph.		7.1	93	795	211
27	No	photograph.		24.5	64	538	0	8	No	photograph.		8.9	16	292	0
28.5	163	1030	733	25	No	photograph.		9	No	photograph.		9.5	46	353	1529
29.5	158	1527	4659	26	No	photograph.		10	No	photograph.		10.5	27	241	914
30.5	166	1312	0	27.5	75	435	358	11	No	photograph.		11.6	60	355	1408
				28	No	photograph.		12	No	photograph.		12.7	40	217	694
				29	No	photograph.		13	No	photograph.		13.1	57	378	804
Oct. 1.5	269	1795	2473	30	No	photograph.		14	No	photograph.		14.6	46	302	0
2	No	photograph.						15	No	photograph.		15.6	46	304	0
3.5	353	2620	1625	Dec. 1	No	photograph.		16.5	10	70	1425	16.1	21	254	0
4	No	photograph.		2	No	photograph.		17	No	photograph.		17.8	62	407	306
5.5	291	1921	2273	3	0	0	0	18	No	photograph.		18.6	104	435	1027
6	No	photograph.		4.4	0	0	316	19	No	photograph.		19.7	53	508	472
7	No	photograph.		5	No	photograph.		20	No	photograph.		20.1	75	632	2700
8.5	115	886	2008	6	No	photograph.		21	No	photograph.		21.2	108	784	2108
9	No	photograph.		7.4	28	219	101	22.5	218	1023	2042	22.7	72	620	333
10.4	117	715	963	8	No	photograph.		23	No	photograph.		23.4	292	1287	500
11	No	photograph.		9.7	5	316	323	24	No	photograph.		24.1	205	1389	560
12	No	photograph.		10	No	photograph.		25.6	0	83	405	25.4	186	909	827
13.5	45	173	0	11.5	83	394	1001	26.7	0	27	225	26.6	87	541	411
14	No	photograph.		12.7	92	823	296	27.6	0	0	793	27.4	50	351	485
15.5	52	241	709	13	No	photograph.		28	0	0	0	28.5	48	351	1483
16	No	photograph.		14.5	84	527	0	29	No	photograph.		29.7	75	573	1114
17	No	photograph.		15	No	photograph.		30.6	0	0	1152	30.7	117	563	0
18	No	photograph.		16	No	photograph.		31.5	0	0	1204	31.8	120	567	253
19.5	67	462	0	17.6	22	302	0					Apr. 1.6	17	511	0
20.5	82	383	0	18.5	0	154	0	Feb. 1.8	0	122	946	2.5	91	495	507
21	No	photograph.		19	No	photograph.		2	No	photograph.		3	No	photograph.	
22.6	72	373	2187	20	No	photograph.		3	No	photograph.		4.6	0	99	902
23.5	48	218	300	21	No	photograph.		4.5	28	147	177	5.5	0	31	350
24	No	photograph.		22	No	photograph.		5.7	21	225	405	6.4	4	98	328
25	No	photograph.		23	No	photograph.		6.8	38	170	353	7.7	5	105	267
26	0	0	0	24	No	photograph.		7.2	36	215	428	8.5	0	27	0
27	0	0	0	25	No	photograph.		8.7	13	93	697	9.1	0	22	0
28.5	0	0	4110	26	No	photograph.		9.2	23	119	883	10.6	52	393	980
29	0	0	0	27	No	photograph.		10.7	0	40	987	11	No	photograph.	
30	No	photograph.		28	No	photograph.		11.2	15	47	1834	12	No	photograph.	
31	No	photograph.		29	No	photograph.		12	No	photograph.		13.6	174	1036	327
				30	No	photograph.		13	No	photograph.		14.5	204	1035	597
Nov. 1	No	photograph.		31	No	photograph.		14.0	0	19	333	15.7	150	939	509
2	No	photograph.						15	0	0	0	16.5	219	963	848
3.6	126	687	0					16	0	0	0	17.5	162	868	1162
4.5	164	896	1642					17.1	0	0	131	18.5	130	634	715
5.5	167	899	798					18.4	42	148	957	19.4	69	446	688
6.6	118	856	0					19	No	photograph.		20.6	54	322	1398
7.5	168	997	344					20.1	144	765	1450	21.7	0	224	921
8	No	photograph.						21.5	327	1594	0	22.7	0	55	658
9.6	212	1115	0					22.5	321	1606	0	23.7	0	0	324
10	No	photograph.						23.5	371	1978	275	24.5	0	0	303
11.5	12	289	0					24	No	photograph.		25.5	42	205	1079
12.4	0	93	1340					25.5	365	1795	522	26.5	46	456	0
13.5	37	158	810					26.6	264	1463	0	27.5	156	1014	1122
14	No	photograph.						27.0	242	1380	166	28.5	205	1258	1102
15	No	photograph.						28.0	239	1232	1145	29.6	267	1795	0
16.5	131	707	505									30.5	129	1421	0

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1875. ^d				1875. ^d				1875. ^d				1875. ^d			
May 1.1	251	1573	337	June 28.6	30	216	402	Aug. 23.5	92	370	1347	Oct. 18.2	0	37	751
2	No	photograph.		29.5	42	237	0	24.7	28	306	0	19	No	photograph.	
3.5	215	1417	0	30.1	65	323	769	25.8	36	288	0	20	No	photograph.	
4.1	140	1083	0					26.6	35	205	0	21.4	0	43	81
5.5	128	873	0					27.5	54	300	0	22	No	photograph.	
6.5	97	433	0					28.6	39	200	0	23	No	photograph.	
7.8	44	204	983	July 1	No	photograph.		29.5	60	233	0	24	No	photograph.	
8	No	photograph.		2.4	55	304	204	30.4	37	208	269	25.5	75	419	743
9.5	0	0	372	3.6	29	179	135	31.4	15	97	1740	26.4	61	376	0
10.7	0	0	364	4	No	photograph.						27.1	97	621	1008
11.6	0	0	420	5.4	22	66	0					28.1	109	624	180
12	0	0	0	6.4	12	52	0					29.0	85	863	469
13.7	0	0	282	7	No	photograph.		Sept. 1.5	0	0	909	30	No	photograph.	
14.6	0	0	404	8.6	0	31	598	2.8	0	0	908	31	No	photograph.	
15.6	0	0	719	9.6	41	232	0	3	0	0	0				
16	No	photograph.		10.6	61	245	529	4	0	0	0				
17.5	0	0	478	11	No	photograph.		5	No	photograph.					
18.8	0	0	287	12.6	33	166	278	6	0	0	0				
19.1	0	0	395	13.6	12	132	401	7	0	0	0	Nov. 1.7	113	672	339
20.1	0	0	223	14.6	0	81	542	8	0	0	0	2.4	130	479	0
21.5	0	0	124	15	No	photograph.		9.4	0	28	634	3.8	57	388	1120
22.7	0	15	407	16.1	0	0	451	10	No	photograph.		4	No	photograph.	
23	0	0	0	17.6	0	54	1151	11.7	0	59	0	5	No	photograph.	
24.5	0	117	815	18.5	0	0	115	12	No	photograph.		6	0	0	0
25	No	photograph.		19	0	0	0	13	0	0	0	7	No	photograph.	
26.6	0	44	0	20.7	0	0	542	14.5	20	92	329	8.5	0	0	231
27.6	9	48	80	21	0	0	0	15.5	5	98	521	9	No	photograph.	
28.6	12	35	209	22.6	0	0	625	16.4	0	58	865	10	0	0	0
29	No	photograph.		23.0	0	0	437	17.1	0	0	188	11	No	photograph.	
30	No	photograph.		24.5	0	20	325	18.7	0	0	695	12	0	0	0
31.6	0	0	317	25.4	0	39	485	19	No	photograph.		13.0	0	0	709
				26.5	14	127	614	20	No	photograph.		14	No	photograph.	
				27.6	0	114	0	21	0	0	0	15.4	0	7	440
				28.5	48	255	231	22	0	0	0	16	No	photograph.	
				29.5	54	364	125	23	No	photograph.		17	No	photograph.	
				30.6	50	324	0	24.6	0	0	609	18.4	76	307	396
				31.5	40	310	0	25.6	0	0	717	19.4	67	376	738
								26	No	photograph.		20.5	148	615	0
								27.5	26	158	579	21	No	photograph.	
								28.7	42	366	0	22.4	204	835	403
				Aug. 1	No	photograph.		29.5	47	338	168	23.5	189	832	0
				2.5	133	848	149	30.5	62	251	0	24	No	photograph.	
				3.5	93	394	0					25.6	133	715	144
				4	No	photograph.						26.1	67	479	264
				5.5	32	140	560					27.1	40	383	174
				6	No	photograph.		Oct. 1.1	0	148	0	28	No	photograph.	
				7	No	photograph.		2.4	52	426	224	29.1	39	276	647
				8	No	photograph.		3	No	photograph.		30.1	25	168	371
				9	0	0	0	4.7	30	226	682				
				10.5	0	0	186	5.6	36	183	485				
				11.6	0	0	444	6.4	14	105	823				
				12	No	photograph.		7.4	47	183	381				
				13.5	0	0	696	8.7	0	50	414	Dec. 1	No	photograph.	
				14	0	0	0	9.4	0	34	83	2	No	photograph.	
				15	No	photograph.		10.5	11	57	0	3	No	photograph.	
				16.4	0	0	221	11.4	0	0	250	4	No	photograph.	
				17	0	0	0	12.1	0	0	896	5	No	photograph.	
				18	0	0	0	13	0	0	0	6	No	photograph.	
				19	0	0	0	14	No	photograph.		7	No	photograph.	
				20.7	0	50	203	15	No	photograph.		8.1	0	0	446
				21.5	36	217	213	16	No	photograph.		9	No	photograph.	
				22.6	73	343	1493	17	0	0	0	10	No	photograph.	

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.
1875. ^d				1876. ^d				1876. ^d				1876. ^d			
Dec. 11	No	photo	graph.	Jan. 1	o	o	o	Mar. 11	43	368	o	Apr. 28	o	o	o
12	No	photo	graph.	2	No	photo	graph.	26	4	32	o	29	o	o	o
13	No	photo	graph.	3	No	photo	graph.	3	o	o	o	30	No	photo	graph.
14.4	o	35	o	4	No	photo	graph.	4.4	o	o	273				
15.1	13	114	193	5.5	o	24	o	5	No	photo	graph.				
16.1	30	287	396	6	No	photo	graph.	6.4	24	58	319	May 1.4	o	o	279
17.5	111	599	347	7	No	photo	graph.	7.4	8	30	985	2.5	o	o	51
18.0	84	674	1040	8	No	photo	graph.	8.5	o	o	411	3.5	o	o	220
19	No	photo	graph.	9	No	photo	graph.	9.4	8	53	387	4.5	o	o	550
20.1	31	471	o	10	No	photo	graph.	10.5	18	85	326	5	o	o	o
21.1	49	379	229	11.1	6	59	255	11.5	19	88	507	6.4	o	o	191
22.1	56	314	o	12.1	o	42	385	12	No	photo	graph.	7.6	73	250	347
23.6	52	299	149	13.1	o	o	505	13.6	70	278	466	8.5	71	248	392
24.5	26	119	57	14	No	photo	graph.	14.6	88	311	671	9.5	57	265	o
25	No	photo	graph.	15	No	photo	graph.	15.6	78	257	650	10.5	52	213	305
26	No	photo	graph.	16	No	photo	graph.	16.4	99	387	o	11.5	43	174	445
27	No	photo	graph.	17	No	photo	graph.	17.5	124	657	o	12.6	52	206	541
28	No	photo	graph.	18.5	43	223	256	18.5	109	463	o	13.5	39	189	292
29	No	photo	graph.	19.5	177	946	445	19.7	143	619	332	14	No	photo	graph.
30.1	3	34	210	20.7	99	877	o	20.5	141	561	o	15.6	o	11	218
31	No	photo	graph.	21.7	92	814	716	21.1	78	548	1041	16.5	o	o	597
				22.5	104	737	o	22.5	275	958	1128	17.7	o	o	365
				23.5	111	740	o	23.7	90	820	951	18	o	o	o
				24.5	203	932	o	24.5	177	925	847	19	o	o	o
				25.5	159	805	1036	25.4	163	849	542	20.6	o	o	208
				26.7	o	302	o	26	No	photo	graph.	21.5	o	o	175
				27.5	27	189	o	27.1	53	560	o	22.9	o	o	518
				28.1	10	60	o	28.7	9	304	1330	23	No	photo	graph.
				29.4	o	66	376	29.6	52	203	371	24	No	photo	graph.
				30	No	photo	graph.	30.5	15	84	144	25.6	o	33	163
				31.5	12	43	346	31.5	o	o	130	26.6	o	33	425
												27.6	6	34	736
				Feb. 1	No	photo	graph.					28	No	photo	graph.
				2.5	9	45	o	Apr. 1	No	photo	graph.	29	o	o	o
				3	No	photo	graph.	2.5	o	o	286	30	o	o	o
				4.5	2	12	o	3.4	o	o	141	31	o	o	o
				5	No	photo	graph.	4.4	o	4	75				
				6	No	photo	graph.	5	o	o	o	June 1.4	o	o	116
				7	No	photo	graph.	6.7	o	35	434	2	No	photo	graph.
				8.7	o	o	225	7.4	o	o	99	3.6	o	o	391
				9	No	photo	graph.	8.5	o	29	131	4.7	o	o	207
				10.4	4	106	o	9.6	o	24	319	5	No	photo	graph.
				11	No	photo	graph.	10.7	o	67	723	6	o	o	o
				12.7	123	763	o	11.5	o	51	592	7	o	o	o
				13.6	225	1029	o	12.7	11	122	o	8	o	o	o
				14.6	259	1209	244	13.1	12	80	o	9	o	o	o
				15.1	178	1181	189	14.6	22	86	590	10	No	photo	graph.
				16.7	213	1415	o	15.5	14	47	593	11	No	photo	graph.
				17.1	232	1388	o	16.5	o	16	368	12	o	o	o
				18.4	194	944	66	17.7	o	115	257	13	o	o	o
				19.5	180	860	o	18.6	o	38	o	14	o	o	o
				20	No	photo	graph.	19	No	photo	graph.	15	o	o	o
				21.7	22	341	282	20.5	o	o	461	16	o	o	o
				22.4	41	184	533	21.0	o	o	361	17	No	photo	graph.
				23	o	o	o	22	o	o	o	18.5	o	o	313
				24.5	o	o	212	23.6	o	o	266	19.6	o	o	347
				25	o	o	o	24.4	o	o	293	20.5	o	o	298
				26.4	24	139	563	25.6	o	o	308	21.4	o	29	572
				27	No	photo	graph.	26.0	o	o	243	22.6	8	26	452
				28.6	32	121	368	27	o	o	o	23.6	9	39	o
				29.6	17	153	o								

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbra.	Whole Spots.	Faculæ.		Umbra.	Whole Spots.	Faculæ.		Umbra.	Whole Spots.	Faculæ.		Umbra.	Whole Spots.	Faculæ.
1876. ^d				1876. ^d				1876. ^d				1876. ^d			
June 24.7	o	38	o	Aug. 21	o	o	o	Oct. 18.1	4	93	510	Dec. 13.6	o	o	344
25	No	photograph.		22.6	7	79	o	19.5	53	262	762	14	o	o	o
26.4	o	11	o	23.4	22	74	o	20.1	28	288	491	15	No	photograph.	
27.6	o	70	o	24	No	photograph.		21.1	52	322	489	16	No	photograph.	
28.6	12	58	209	25.6	62	177	276	22	No	photograph.		17	No	photograph.	
29.1	31	126	151	26.7	11	129	259	23.2	55	439	o	18.0	37	178	268
30	o	o	o	27	No	photograph.		24	No	photograph.		19.2	55	445	o
				28.6	7	87	477	25.2	44	215	o	20.1	95	579	o
July 1	No	photograph.		29.5	o	18	312	26.0	29	136	o	21.1	72	257	o
2	No	photograph.		30.6	14	89	o	27.1	25	141	o	22.5	171	1281	o
3.6	94	413	1040	31.5	26	81	o	28	No	photograph.		23.1	85	532	o
4.6	28	332	237					29	No	photograph.		24	No	photograph.	
5.6	41	233	206	Sept. 1.6	31	129	o	30	No	photograph.		25	No	photograph.	
6.6	19	182	168	2.6	o	320	o	31	o	o	o	26	No	photograph.	
7.4	31	158	607	3	No	photograph.						27.0	107	631	o
8.5	63	235	o	4.6	o	98	890					28	No	photograph.	
9	No	photograph.		5.6	o	8	656	Nov. 1	o	o	o	29.1	48	178	o
10.5	9	43	371	6.5	o	o	182	2.6	53	221	348	30	o	o	o
11.6	o	44	642	7	o	o	o	3.8	32	308	833	31	No	photograph.	
12.5	o	o	560	8	o	o	o	4.7	23	123	471				
13.6	o	o	297	9	No	photograph.		5	No	photograph.					
14.6	o	o	319	10	No	photograph.		6	No	photograph.					
15	o	o	o	11	No	photograph.		7	o	o	o				
16	No	photograph.		12	o	o	o	8	o	o	o				
17.5	o	o	96	13	No	photograph.		9.6	o	27	198				
18	o	o	o	14.6	30	168	599	10	No	photograph.					
19.6	o	64	o	15.7	57	197	567	11	No	photograph.					
20.6	18	75	385	16.6	32	176	o	12	No	photograph.					
21.6	19	91	556	17	No	photograph.		13.7	o	143	279				
22.5	22	113	368	18.4	63	261	95	14.6	39	144	219				
23	No	photograph.		19	No	photograph.		15.5	104	334	254				
24.6	18	127	722	20	o	o	o	16.5	82	313	o				
25.5	39	179	346	21.5	o	o	456	17	No	photograph.					
26.5	36	126	o	22.4	o	o	965	18.1	32	177	o				
27.4	31	80	o	23	No	photograph.		19.5	80	322	214				
28.6	o	30	110	24	No	photograph.		20.1	16	122	104				
29.6	o	o	632	25.1	o	o	104	21.0	8	129	171				
30	No	photograph.		26.1	o	o	105	22	No	photograph.					
31.1	8	81	477	27.6	47	367	496	23	No	photograph.					
				28.5	120	505	o	24	o	o	o				
Aug. 1.6	o	o	426	29.5	195	728	o	25	No	photograph.					
2.5	o	o	286	30.6	89	737	o	26	No	photograph.					
3.6	o	o	116					27	o	o	o				
4	o	o	o	Oct. 1	No	photograph.		28	o	o	o				
5	o	o	o	2.6	49	452	o	29.5	o	o	109				
6	No	photograph.		3.6	48	409	o	30	o	o	o				
7.5	o	74	263	4.5	56	257	o								
8	o	o	o	5.4	52	194	399	Dec. 1	o	o	o				
9.5	o	o	92	6.6	23	89	343	2	o	o	o				
10	o	o	o	7	No	photograph.		3	No	photograph.					
11	o	o	o	8	No	photograph.		4	No	photograph.					
12	No	photograph.		9	o	o	o	5	No	photograph.					
13	No	photograph.		10	o	o	o	6.5	o	o	110				
14	o	o	o	11.6	4	34	o	7	o	o	o				
15.7	o	o	179	12.5	55	189	61	8	No	photograph.					
16.5	o	50	o	13	No	photograph.		9	No	photograph.					
17.5	70	193	o	14	No	photograph.		10	No	photograph.					
18.7	16	199	o	15	No	photograph.		11	No	photograph.					
19.7	19	153	o	16.1	40	222	o	12	o	o	o				
20	No	photograph.		17.5	81	389	409								

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.									
		Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.							
1877. ^d					1877. ^d					1877. ^d											
Jan.	1	No	photo graph.		Mar.	1 ¹	44	191	0	Apr.	28 ¹	0	60	122	June	24	No	photo graph.			
	2	No	photo graph.			2	No	photo graph.			29	No	photo graph.			25 ⁴	46	134	271		
	3	0	0	0		3 ⁰	22	316	0		30 ⁶	10	58	580		26	No	photo graph.			
	4	0	0	0		4	No	photo graph.								27 ⁵	0	0	118		
	5	0	0	0		5 ¹	18	336	0							28 ⁵	16	49	95		
	6 ¹	0	73	0		6	No	photo graph.			May	1 ¹	0	78		232	29 ⁵	43	129	729	
	7	No	photo graph.			7	No	photo graph.				2 ¹	6	101		145	30	No	photo graph.		
	8 ⁰	0	30	0		8 ⁶	0	60	0			3 ⁴	21	79		0					
	9 ¹	0	15	0		9 ¹	0	58	324			4 ⁵	23	148		0	July	1	No	photo graph.	
	10 ¹	29	353	147		10 ⁶	0	34	200			5 ⁴	17	54		0		2	No	photo graph.	
	11 ²	38	417	260		11	No	photo graph.				6	No	photo graph.				3 ⁴	16	48	0
	12 ¹	44	273	259		12	No	photo graph.				7 ⁴	39	113		642		4 ⁴	5	57	143
	13 ⁰	29	302	0		13	No	photo graph.				8 ⁴	42	200		748		5 ⁴	2	49	0
	14	No	photo graph.			14	0	0	0			9 ⁵	41	140		435		6	0	0	0
	15 ⁶	196	805	1012		15	No	photo graph.				10 ⁵	79	283		0		7	0	0	0
	16	No	photo graph.			16	0	0	0			11 ⁶	74	367		0		8	No	photo graph.	
	17 ¹	161	924	0		17 ⁵	10	76	0			12	No	photo graph.				9	0	0	0
	18 ⁰	122	974	0		18 ⁴	83	357	0			13	No	photo graph.				10 ⁴	0	0	200
	19 ⁰	88	1023	0		19 ⁶	59	397	0			14	No	photo graph.				11 ¹	0	0	130
	20 ¹	70	619	0		20	No	photo graph.				15 ⁵	39	179		0		12 ⁵	0	0	184
	21	No	photo graph.			21 ²	25	236	298			16 ¹	17	142		0		13	0	0	0
	22 ¹	43	289	119		22 ⁵	18	61	131			17 ¹	11	129		204		14 ¹	10	49	0
	23 ⁵	18	100	0		23 ⁵	0	0	381			18 ⁴	29	112		750		15	No	photo graph.	
	24 ⁵	13	65	215		24 ⁵	0	0	555			19	No	photo graph.				16	No	photo graph.	
	25 ¹	0	83	273		25	No	photo graph.				20	No	photo graph.				17	0	0	0
	26 ⁵	0	39	282		26	No	photo graph.				21	No	photo graph.				18 ⁵	10	26	258
	27 ⁰	0	17	0		27 ⁶	0	0	335			22	No	photo graph.				19	No	photo graph.	
	28	No	photo graph.			28	0	0	0			23	No	photo graph.				20 ⁵	0	0	326
	29 ⁵	0	0	197		29	0	0	0			24 ⁵	33	157		0		21 ⁵	0	0	244
	30 ⁵	0	9	194		30	0	0	0			25 ⁵	45	143		0		22	No	photo graph.	
	31 ¹	0	15	0		31 ⁴	0	0	264			26 ⁴	31	157		554		23	0	0	0
								27	No	photo graph.			24	0	0	0					
								28 ⁴	0	0		246	25	0	0	0					
								29 ⁴	0	0		107	26	0	0	0					
								30	0	0		0	27	No	photo graph.						
								31	0	0		0	28	No	photo graph.						
												29	0	0	0						
												30 ⁴	0	0	49						
												31 ⁴	0	0	110						
	</																				

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1877. d				1877. d				1877. d				1877. d			
Aug. 21	0	0	0	Sept. 23	No	photo	graph.	Oct. 26.1	15	215	0	Nov. 28.5	142	669	0
22.5	8	32	94	24.4	0	0	265	27	No	photo	graph.	29.1	85	631	0
23.5	22	104	458	25.1	0	20	336	28	No	photo	graph.	30.4	120	459	0
24.4	32	246	744	26.6	18	75	271	29	No	photo	graph.				
25	No	photo	graph.	27.5	10	41	472	30.5	280	1265	654				
26	No	photo	graph.	28.4	9	53	0	31.4	281	1482	0	Dec. 1	No	photo	graph.
27	No	photo	graph.	29.5	5	16	276					2.5	58	233	568
28.5	30	82	0	30	No	photo	graph.					3.1	30	206	507
29.6	22	59	61									4	No	photo	graph.
30	No	photo	graph.					Nov. 1.4	272	1772	608	5	0	0	0
31.4	7	31	0					2.1	207	1620	189	6	0	0	0
				Oct. 1.4	5	14	133	3.5	237	1092	0	7	0	0	0
				2	0	0	0	4.5	152	842	0	8	0	0	0
				3	0	0	0	5.4	107	583	383	9	No	photo	graph.
Sept. 1.5	0	0	880	4	No	photo	graph.	6	No	photo	graph.	10	0	0	0
2	No	photo	graph.	5.4	0	0	261	7.1	37	246	991	11	0	0	0
3	No	photo	graph.	6.4	0	0	276	8.4	0	0	307	12	0	0	0
4.5	19	87	216	7	No	photo	graph.	9	No	photo	graph.	13	0	0	0
5.5	52	246	337	8	0	0	0	10.4	0	0	227	14	0	0	0
6.4	75	300	221	9	0	0	0	11	No	photo	graph.	15	No	photo	graph.
7.4	77	445	0	10	No	photo	graph.	12.4	0	0	128	16	No	photo	graph.
8	No	photo	graph.	11	0	0	0	13	No	photo	graph.	17	0	0	0
9.5	72	316	0	12	0	0	0	14.5	62	180	0	18	0	0	0
10	No	photo	graph.	13	No	photo	graph.	15	No	photo	graph.	19	No	photo	graph.
11	No	photo	graph.	14	No	photo	graph.	16.5	31	113	0	20	No	photo	graph.
12.4	65	202	260	15	0	0	0	17.6	29	52	0	21.1	0	34	171
13	No	photo	graph.	16	0	0	0	18	No	photo	graph.	22	No	photo	graph.
14	No	photo	graph.	17.4	0	0	97	19	No	photo	graph.	23	No	photo	graph.
15	No	photo	graph.	18	0	0	0	20	0	0	0	24	No	photo	graph.
16	No	photo	graph.	19	No	photo	graph.	21	No	photo	graph.	25	No	photo	graph.
17	No	photo	graph.	20	0	0	0	22.5	35	123	338	26	0	0	0
18.5	2	45	333	21	No	photo	graph.	23.4	62	306	475	27	No	photo	graph.
19	No	photo	graph.	22	No	photo	graph.	24.1	53	590	190	28	0	0	0
20.1	0	24	0	23	0	0	0	25.2	73	753	0	29	No	photo	graph.
21.5	2	22	214	24.4	0	0	171	26.6	168	828	0	30	No	photo	graph.
22	0	0	0	25	No	photo	graph.	27.2	94	759	0	31.5	0	23	246

TOTAL PROJECTED AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY IN THE YEARS 1878-1881, DEDUCED FROM THE MEASUREMENTS OF THE PHOTOGRAPHS OF THE SUN TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT DEHRA DÛN IN INDIA, AT THE MELBOURNE OBSERVATORY, AUSTRALIA, AND AT THE ROYAL ALFRED OBSERVATORY, MAURITIUS.

The Projected Area is the Area as it is measured on the Photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disk.

The Greenwich Civil Time is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight. The decimal of the day has not been given for days when neither spots nor faculæ were observed on the photographs.

Dates for which the areas are given in brackets indicate days for which no photographic Record is at present available; in these cases the areas have been obtained by interpolation from the measures of photographs taken on the days immediately preceding and following the day for which the photograph is lacking. These interpolated values have been used in taking the mean daily areas for each rotation and for each year, given in the last section of this volume.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1878. d				1878. d				1878. d				1878. d			
Jan. 1	o	o	o	Feb. 10	o	o	o	Mar. 22	o	o	o	May 1	o	o	o
2	o	o	o	11	o	o	o	23	o	o	o	2	(o	o	o)
3	o	o	o	12	o	o	o	24	o	o	o	3	(o	o	o)
4	o	o	o	13	o	o	o	25	o	o	o	4	o	o	o
5	o	o	o	14.3	o	o	282	26	o	o	o	5	o	o	o
6	(o	o	174)	15	o	o	o	27	o	o	o	6	o	o	o
7.5	o	o	347	16	o	o	o	28	o	o	o	7	o	o	o
8	o	o	o	17	o	o	o	29.3	o	o	328	8	o	o	o
9	o	o	o	18	o	o	o	30	o	o	o	9	o	o	o
10.5	o	o	63	19	o	o	o	31	(o	o	o)	10.5	o	o	115
11	o	o	o	20	o	o	o					11	o	o	o
12	o	o	o	21	o	o	o					12	o	o	o
13	o	o	o	22	o	o	o	Apr. 1	o	o	o	13	o	o	o
14	(o	o	o)	23	o	o	o	2	o	o	o	14	o	o	o
15	(o	o	o)	24	o	o	o	3.3	o	o	146	15	o	o	o
16	o	o	o	25	o	o	o	4	o	o	o	16	o	o	o
17.5	o	o	700	26	o	7	o	5.2	o	18	395	17	o	o	o
18	o	o	o	27.2	o	7	265	6	o	o	o	18	o	o	o
19	o	o	o	28	o	o	o	7	o	o	o	19	o	o	o
20	o	o	o					8	o	o	o	20	o	o	o
21	o	o	o					9	o	o	o	21	o	o	o
22	o	o	o	Mar. 1	o	o	o	10	o	o	o	22	o	o	o
23.6	87	239	o	2	o	o	o	11	o	o	o	23	o	o	o
24	(65	210	o)	3	o	o	o	12	o	o	o	24	o	o	o
25.1	43	180	o	4.5	62	257	409	13	o	o	o	25	o	o	o
26.1	o	136	o	5.4	28	125	1026	14.3	o	o	130	26	(35	144	403)
27	(o	91	o)	6.1	3	50	o	15	o	o	o	27.5	69	288	806
28	(o	45	o)	7	o	o	o	16	o	o	o	28.1	54	442	702
29	o	o	o	8.4	o	o	588	17	o	o	o	29.1	100	636	944
30	o	o	o	9.2	o	o	247	18	o	o	o	30.1	83	492	62
31	o	o	o	10	o	o	o	19	o	o	o	31.4	120	552	461
				11.3	3	28	o	20	o	o	o				
Feb. 1	o	o	o	12.5	69	308	o	21	o	o	o	June 1.1	105	489	o
2	o	o	o	13.3	43	369	o	22	o	o	o	2.3	42	338	478
3.2	24	182	o	14.5	51	252	o	23	o	o	o	3.3	45	157	o
4	(30	207	o)	15.3	91	514	o	24	o	o	o	4.4	12	67	684
5.2	36	231	o	16.2	50	347	o	25	o	o	o	5.1	o	10	1845
6	(24	170	174)	17	(35	227	o)	26	o	o	o	6.5	o	12	282
7	(12	110	347)	18.2	20	106	o	27	o	o	o	7	o	o	o
8.5	o	49	521	19.1	o	o	347	28	o	o	o	8	o	o	o
9	o	o	o	20	o	o	o	29	o	o	o	9	o	o	o
				21	o	o	o	30	o	o	o				

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1878. d				1878. d				1878. d				1878. d			
June 10.5	0	19	0	Aug. 7.5	0	0	97	Oct. 3	0	0	0	Dec. 1	0	0	0
11	0	0	0	8	0	0	0	4	0	0	0	2	0	0	0
12.5	0	0	102	9	0	0	0	5	0	0	0	3	0	0	0
13	0	0	0	10	0	0	0	6	0	0	0	4	0	0	0
14	0	0	0	11	0	0	0	7	0	0	0	5	0	0	0
15	0	0	0	12	0	0	0	8.5	0	0	60	6	0	0	0
16	0	0	0	13	0	0	0	9	0	0	0	7	0	0	0
17	0	0	0	14	0	0	0	10	0	0	0	8	0	0	0
18	0	0	0	15	0	0	0	11	0	0	0	9	0	0	0
19	0	0	0	16.5	0	0	75	12.2	0	0	169	10	0	0	0
20	0	0	0	17	0	0	0	13.3	0	0	180	11	0	0	0
21.4	0	0	236	18	(0	0	0)	14	0	0	0	12	0	0	0
22.4	0	0	535	19	0	0	0	15	0	0	0	13	0	0	0
23	0	0	0	20	(0	0	0)	16	0	0	0	14	0	0	0
24	0	0	0	21	0	0	0	17	0	0	0	15	0	0	0
25	0	0	0	22	0	0	0	18	0	0	0	16.3	0	0	54
26.5	17	80	103	23	0	0	0	19.5	0	0	289	17.2	0	0	42
27.5	41	188	369	24	0	0	0	20	0	0	0	18	0	0	0
28.5	39	194	271	25	0	0	0	21.5	0	0	322	19.4	5	28	233
29.5	3	38	40	26	0	0	0	22	0	0	0	20.2	4	11	102
30	0	0	0	27	0	0	0	23	0	0	0	21	0	0	0
				28	0	0	0	24	0	0	0	22	0	0	0
				29	0	0	0	25	0	0	0	23	0	0	0
July 1	0	0	0	30	0	0	0	26	0	0	0	24	0	0	0
2	0	0	0	31	0	0	0	27	0	0	0	25	0	0	0
3	0	0	0					28	0	0	0	26	0	0	0
4	0	0	0					29.3	8	66	231	27	0	0	0
5	0	0	0	Sept. 1	0	0	0	30.2	13	94	368	28	0	0	0
6	0	0	0	2.6	11	64	58	31.2	24	146	222	29	0	0	0
7	(0	0	0)	3.5	27	119	257					30	0	0	0
8	0	0	0	4.4	38	201	279	Nov. 1.5	33	158	153	31	0	0	0
9	0	0	0	5.2	37	233	0	2.3	26	149	0				
10	0	0	0	6.5	71	259	0	3.3	26	140	0				
11	0	0	0	7.4	64	287	0	4.2	18	128	0				
12	0	0	0	8.3	70	354	0	5.5	31	130	0				
13	0	0	0	9.6	52	265	0	6.3	21	109	0				
14	(0	0	0)	10.6	55	249	85	7.5	26	91	0				
15	0	0	0	11.5	44	210	332	8.3	16	69	291				
16.5	0	0	449	12.4	36	144	775	9.2	9	23	228				
17.5	0	0	71	13.5	18	64	445	10	0	0	0				
18	0	0	0	14.5	0	0	117	11	0	0	0				
19	0	0	0	15	0	0	0	12	0	0	0				
20	0	0	0	16	0	0	0	13	0	0	0				
21	0	0	0	17	0	0	0	14	0	0	0				
22	0	0	0	18	0	0	0	15	0	0	0				
23	0	0	0	19	0	0	0	16.5	0	0	106				
24	0	0	0	20	0	0	0	17	0	0	0				
25	0	0	0	21	0	0	0	18	0	0	0				
26.4	5	18	272	22	0	0	0	19.5	0	0	113				
27.5	0	0	35	23	0	0	0	20.3	3	20	70				
28	0	0	0	24	0	0	0	21.3	2	16	93				
29	0	0	0	25	0	0	0	22.2	0	23	146				
30	0	0	0	26	0	0	0	23	0	0	0				
31	0	0	0	27	0	0	0	24	0	0	0				
				28	0	0	0	25	0	0	0				
Aug. 1	0	0	0	29.2	0	0	65	26	0	0	0				
2	0	0	0	30.5	0	0	213	27	0	0	0				
3	0	0	0					28	0	0	0				
4	0	0	0					29.5	0	0	217				
5	0	0	0	Oct. 1.4	0	0	477	30	0	0	0				
6.5	0	0	79	2	0	0	0								

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.	
1879. Jan.				1879. Mar.				1879. Apr.				1879. June				
1	0	0	0	1	0	0	0	28	0	0	0	25	0	0	0	
2	0	0	0	2	0	0	0	29	0	0	0	26	(28	71	0)	
3	0	0	0	3	0	0	0	30	0	0	0	27.4	55	142	0	
4	0	0	0	4	0	0	0					28.5	65	232	0	
5	0	0	0	5	0	0	0					29	(61	271	0	
6	0	0	0	6	0	0	0	May	1	0	0	30.5	56	309	0	
7	0	0	0	7	0	0	0	2	0	0	0					
8	0	0	0	8	0	0	0	3	0	0	0					
9	0	0	0	9	0	0	0	4	0	0	0	July	1.1	61	464	0
10	0	0	0	10	0	0	0	5	0	0	0	2.4	44	204	487	
11	0	0	0	11	0	0	0	6	0	0	0	3.1	49	246	1584	
12	(0	0	0)	12.3	0	0	80	7	0	0	0	4.5	17	94	841	
13	0	0	0	13	0	0	0	8	(0	56	1021)	5.4	6	51	1260	
14	0	0	0	14.2	0	0	161	9.1	0	111	2042	6	(3	26	707)	
15	0	0	0	15	0	0	0	10.4	25	80	572	7.5	0	0	154	
16	0	0	0	16.2	0	0	136	11	(16	55	286)	8	0	0	0	
17	0	0	0	17.2	0	0	167	12.5	7	30	0	9	0	0	0	
18	0	0	0	18	0	0	0	13	0	0	0	10	0	0	0	
19.3	0	0	147	19.1	0	0	88	14	0	0	0	11.5	31	178	487	
20.2	0	0	259	20	0	0	0	15	0	0	0	12.4	45	410	0	
21.2	0	0	584	21	0	0	0	16	0	0	0	13	(35	319	0)	
22.2	0	0	105	22	0	0	0	17.4	0	0	375	14.4	24	227	0	
23	0	0	0	23	0	0	0	18	0	0	0	15.1	40	222	0	
24	0	0	0	24	0	0	0	19.5	0	0	150	16.4	8	97	0	
25	0	0	0	25.3	0	0	386	20	(0	0	75)	17	(4	49	67)	
26	0	0	0	26.3	0	0	259	21	0	0	0	18.4	0	0	133	
27	0	0	0	27.2	0	0	268	22	0	0	0	19	(0	0	89)	
28	0	0	0	28	0	0	0	23	0	0	0	20	(0	0	44)	
29	0	0	0	29	0	0	0	24	0	0	0	21	0	0	0	
30.3	6	43	199	30	0	0	0	25	0	0	0	22	0	0	0	
31.3	0	8	419	31	0	0	0	26	0	0	0	23	0	0	0	
								27	0	0	0	24	0	0	0	
								28	0	0	0	25	0	0	0	
								29	0	0	0	26	0	0	0	
								30	0	0	0	27	(0	0	0)	
								31	(0	0	0)	28	0	0	0	
												29	0	0	0	
												30.4	0	0	169	
												31	0	0	0	
								June	1	0	0					
								2	0	0	0					
								3	0	0	0	Aug.	1	0	0	0
								4	0	0	0	2.4	0	0	60	
								5	(0	0	0)	3	(0	0	30)	
								6	0	0	0	4	0	0	0	
								7	0	0	0	5	0	0	0	
								8	(0	0	94)	6	0	0	0	
								9.5	0	0	183	7	0	0	0	
								10	0	0	0	8	0	0	0	
								11	0	0	0	9	0	0	0	
								12	0	0	0	10	(4	49	175)	
								13	0	0	0	11.4	8	97	350	
								14.5	0	0	90	12.5	81	222	333	
								15	(0	0	45)	13.4	59	152	138	
								16	0	0	0	14	0	0	0	
								17	0	0	0	15	0	0	0	
								18	0	0	0	16	0	0	0	
								19	0	0	0	17	(0	0	0)	
								20	0	0	0	18	0	0	0	
								21	0	0	0	19	(0	0	0)	
								22	0	0	0	20	0	0	0	
								23	0	0	0	21	0	0	0	
								24	0	0	0					
															</	

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.	
1879. ^d Aug.				1879. ^d Oct.				1879. ^d Dec.				1880. ^d Jan.				
22	0	0	0	19.2	70	609	554	16.5	11	33	3198	1	0	0	0	
23	(0	0	0)	20.4	126	519	306	17.4	47	242	322	2	0	0	0	
24	(0	0	0)	21.5	48	266	233	18.3	50	258	241	3.5	25	79	505	
25	0	0	0	22	(24	133	117)	19.4	60	270	356	4.2	33	161	1242	
26	0	0	0	23	0	0	0	20.2	36	294	112	5.2	113	506	1053	
27	(27	137	939)	24	0	0	0	21.2	48	297	105	6.3	91	544	0	
28.1	53	273	1878	25.5	0	0	75	22	(32	198	70)	7.2	128	836	509	
29	(57	291	1073)	26	0	0	0	23	(16	99	35)	8	(127	762	255)	
30.5	61	308	267	27	0	0	0	24	0	0	0	9.1	125	687	0	
31.2	24	224	0	28	0	0	0	25	(0	0	0)	10.3	139	769	861	
				29	0	0	0	26	0	0	0	11.3	109	603	1159	
				30	0	0	0	27	0	0	0	12.5	147	569	1162	
				31	0	0	0	28	0	0	0	13.3	73	546	332	
Sept.								29	0	0	0	14.3	147	824	943	
1.5	74	313	0	Nov.	1	0	0	30	0	0	0	15.2	160	792	912	
2.5	54	277	0		2	0	0	31	0	0	0	16.3	203	900	1315	
3.5	51	289	0		3	0	0					17.5	121	539	1197	
4.4	50	245	0		4	(0	0					18	(81	337	677)	
5.2	24	115	0		5	(0	0					19.4	40	134	156	
6	(21	106	173)		6.4	0	0					20.2	10	81	892	
7.2	18	96	346		7.5	99	438					21.2	0	26	351	
8.4	0	0	465		8.2	74	497					22	0	0	0	
9	0	0	0		9.2	58	470					23	0	0	0	
10	0	0	0		10.2	62	486					24.3	0	7	360	
11	(0	0	0)		11.2	49	568					25.2	0	0	657	
12	0	0	0		12.6	152	487					26.5	0	20	1272	
13	0	0	0		13.5	90	388					27.6	0	0	406	
14	0	0	0		14.5	44	261					28	0	0	0	
15	0	0	0		15.5	27	163					29	(31	145	269)	
16	0	0	0		16.2	17	78					30.5	62	289	538	
17	0	0	0		17.2	16	66					31.4	100	572	1097	
18	0	0	0		18.5	0	12									
19	0	0	0		19.5	0	0					Feb.	1.2	216	940	2125
20	0	0	0		20	(0	0						2.5	163	782	914
21	0	0	0		21	0	0						3.3	168	1100	94
22	0	0	0		22	0	0						4.5	239	1005	1035
23	0	0	0		23	0	0						5.5	249	1073	1354
24.4	17	73	368		24	0	0						6.2	248	1105	1365
25.6	17	54	541		25.6	3	14						7.2	234	1114	1688
26.6	29	66	252		26	0	0						8	(224	1137	1325)
27.5	13	38	620		27	(11	37						9.4	214	1159	962
28	(9	26	414)		28.5	21	74						10.1	138	778	1645
29	(4	13	207)		29.2	0	104						11.2	133	792	439
30	0	0	0		30	(8	102						12.5	68	342	1140
Oct.													13.4	20	155	1304
1	(14	42	115)	Dec.	1.2	16	100						14.1	0	0	2787
2.6	28	85	229		2.6	42	195						15.2	0	0	652
3.4	28	103	0		3.5	19	120						16.1	0	0	1473
4.6	0	0	741		4.5	4	20						17	0	0	0
5	0	0	0		5	0	0						18.6	0	0	199
6.5	0	0	35		6.5	0	0						19	0	0	0
7.5	6	34	210		7	0	0						20	0	0	0
8.1	0	51	1332		8	0	0						21.4	11	33	124
9	(32	120	666)		9	0	0						22.2	28	182	702
10.6	63	188	0		10	0	0						23.3	55	317	1545
11.5	0	161	0		11	0	0						24.3	52	261	927
12	(3	141	317)		12	0	0						25.5	55	308	0
13	(6	121	634)		13	0	0						26.5	55	308	0
14.4	8	101	951		14	0	0						27.4	56	262	492
15.5	14	66	0		15	0	0						28.2	99	280	673
16.5	0	34	256										29.2	88	258	1474
17.2	0	34	0													
18.5	163	666	780													

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.
1880. d				1880. d				1880. d				1880. d			
Mar. 1 ⁵	72	249	698	Apr. 28 ³	206	975	2665	June 24 ⁵	426	1854	0	Aug. 21 ⁵	173	844	2923
2 ³	64	281	2074	29 ⁴	162	692	384	25 ¹	201	1756	0	22 ³	85	571	721
3 ²	40	249	1246	30 ⁵	168	634	293	26	(237	1682	345)	23 ²	103	509	915
4 ⁵	7	71	542					27 ¹	272	1608	690	24 ²	35	134	212
5 ⁶	0	0	360					28 ⁵	72	362	1033	25	0	0	0
6 ²	39	102	1874					29 ⁶	98	453	1547	26	0	0	0
7 ²	24	79	2492	May 1 ⁴	145	471	383	30 ⁵	99	397	549	27	0	0	0
8 ³	34	253	2071	2 ³	133	585	202					28 ⁵	53	199	545
9 ³	83	385	1481	3 ⁵	141	631	3570	July 1	(83	343	665)	29 ²	58	251	0
10 ⁶	46	196	312	4 ²	98	616	1544	2 ⁴	67	289	780	30 ³	125	585	0
11 ⁵	31	199	1022	5 ³	97	638	2287	3 ⁵	65	277	217	31 ⁵	122	725	1414
12 ⁵	50	181	743	6 ⁵	129	700	1092	4 ⁴	87	282	398				
13 ⁵	68	304	617	7 ⁴	123	637	360	5 ⁴	86	289	899	Sept. 1 ⁴	61	457	460
14 ²	120	625	1298	8 ⁵	140	839	153	6 ¹	37	272	3394	2 ⁵	68	369	350
15 ²	116	519	115	9 ²	155	713	0	7	(82	389	2041)	3 ⁶	51	240	1145
16 ⁶	53	256	184	10 ²	185	969	0	8 ⁴	127	505	688	4 ⁴	70	282	1052
17 ⁵	46	176	247	11 ⁵	113	541	414	9 ⁵	48	200	799	5 ²	101	420	765
18 ⁶	12	114	86	12 ⁵	101	380	871	10 ⁴	7	21	508	6 ³	152	719	1129
19 ⁵	0	25	273	13 ⁴	84	319	911	11 ¹	3	10	276	7 ⁶	196	806	2506
20 ⁶	0	0	405	14 ⁴	0	101	550	12 ⁴	0	0	373	8 ⁵	420	1626	205
21	0	0	0	15 ⁴	0	0	368	13 ⁴	0	40	268	9 ⁴	561	2332	0
22	0	0	0	16 ³	0	0	177	14 ⁴	0	0	143	10 ⁶	871	3073	1378
23	0	0	0	17 ⁵	0	0	312	15 ⁵	0	0	360	11 ³	1064	3948	0
24	0	0	0	18	0	0	0	16	(0	0	1834)	12 ³	938	3773	0
25 ⁵	0	0	318	19 ²	0	0	180	17 ⁰	0	0	3307	13 ⁶	680	3089	1419
26	0	0	0	20 ⁵	16	75	512	18	(0	0	2006)	14 ²	629	2785	0
27 ²	9	33	189	21 ⁵	11	39	228	19 ⁶	0	0	704	15 ²	371	1615	1521
28	0	0	0	22 ³	0	0	241	20 ⁶	58	368	795	16 ⁶	158	679	1757
29 ²	31	138	796	23	0	0	0	21 ⁵	141	688	389	17 ⁵	135	443	1470
30 ³	65	322	319	24 ²	14	49	642	22 ²	171	994	595	18 ⁶	134	570	2932
31 ³	51	293	1845	25 ⁵	69	292	1206	23 ⁶	177	990	2782	19	(102	427	2246)
				26 ⁵	201	730	965	24 ⁶	124	661	1536	20 ⁵	69	284	1560
				27 ⁶	253	1111	146	25	(84	474	1880)	21 ²	103	406	0
				28 ⁵	324	1424	379	26 ⁶	43	286	2223	22 ⁵	51	326	466
				29 ⁴	305	1783	733	27 ⁴	28	214	1648	23 ³	47	247	0
				30 ³	464	2273	489	28 ¹	41	314	1497	24 ⁴	79	343	495
				31 ³	482	2009	298	29 ⁵	32	112	1555	25 ⁴	80	481	1940
								30 ⁵	9	70	2094	26 ³	102	494	1476
								31 ⁴	9	36	1315	27 ⁴	135	757	2112
												28 ³	342	1494	1184
												29 ⁶	556	2932	979
												30 ³	624	2874	0

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.
1881. d				1881. d				1881. d				1881. d			
Apr. 28.4	49	352	1148	June 21.5	38	117	1356	Aug. 14.3	0	0	589	Oct. 5.3	106	619	1393
29.3	0	59	734	22.4	12	55	580	15.5	0	0	1149	6.3	157	784	2237
30.4	10	26	1116	23.5	51	189	977	16.5	0	0	947	7.4	197	1055	1605
				24.5	178	640	2337	17.4	27	69	1730	8.3	136	875	2880
				25.2	99	543	3161	18.3	0	153	0	9.3	95	911	1551
				26	(184	964	2337)	19.3	4	65	1033	10.3	113	1054	912
				27.3	269	1385	1513	20.5	39	154	1616	11.3	146	1025	1890
				28.5	434	2216	3218	21	(63	275	1641)	12.3	198	1096	2775
May 1.2	17	85	1136	29.4	523	2235	1186	22.4	86	396	1665	13.3	108	792	1669
2.3	0	49	0	30.5	312	1550	1916	23.4	158	753	1152	14.4	143	647	368
3.4	0	21	957					24.4	251	1319	2247	15.4	120	639	1078
4.3	26	66	884					25.3	250	1645	875	16.3	93	575	3510
5.5	55	251	1201					26.4	425	1831	1821	17.4	233	1222	1824
6.4	55	254	1766					27.4	609	2641	831	18.4	278	1257	1066
7.4	41	249	1629					28.4	558	2677	2123	19.5	332	1912	654
8.2	75	342	440	July 1.5	352	1446	1777	29.3	455	2433	1719	20.5	511	2542	581
9.5	72	419	1154	2.4	168	1149	2520	30.5	503	3014	3263	21.3	427	2218	2065
10.3	87	252	2175	3.1	225	963	2486	31	(471	2661	3358)	22.3	325	2112	1355
11.4	33	209	439	4.4	139	535	3205					23.3	410	1893	2045
12.5	79	410	644	5.5	106	543	2955					24.3	340	1856	350
13.4	102	422	2922	6.4	136	506	2111					25.4	397	1580	898
14.5	66	389	1335	7.1	121	746	2625					26.4	156	892	2482
15.2	64	387	1631	8	(140	852	1992)					27.3	23	518	1539
16.3	70	403	1235	9.4	158	957	1358	Sept. 1.4	439	2308	3453	28.3	21	138	764
17.2	59	261	1146	10	(223	1246	2619)	2	(317	1722	2538)	29.5	9	68	2238
18.6	50	288	1008	11.5	288	1534	3879	3.0	194	1135	1623	30.6	0	34	467
19.4	84	316	1747	12.5	271	1399	2119	4.7	159	1010	472	31.3	0	0	632
20.4	86	399	1510	13.5	225	1316	2823	5.3	257	1167	1457				
21.4	107	428	915	14.5	205	1213	2646	6.4	191	970	2682				
22.2	95	347	938	15.4	186	1079	1553	7.6	236	1016	1645				
23.6	183	533	2695	16.4	141	687	1709	8.2	193	777	2978				
24.4	118	514	1940	17.1	77	281	0	9.3	169	1164	2631				
25.4	225	792	733	18.5	118	497	1701	10.2	245	1187	1373	Nov. 1.2	0	57	2316
26.3	144	676	475	19.5	188	812	1795	11.2	264	1716	358	2.3	0	50	285
27.3	166	1039	1304	20.1	176	747	3233	12.3	311	1824	1032	3.3	28	111	764
28.2	288	1246	2449	21.4	310	1177	3301	13.6	565	2108	1481	4.3	28	151	2317
29.1	295	1282	946	22	(266	1168	2773)	14.4	399	1914	2243	5.5	50	197	1132
30.5	292	1573	2093	23.1	222	1158	2245	15.6	354	1670	2144	6.3	43	188	1470
31.4	309	1675	1359	24.4	307	2013	1100	16.6	245	1258	1467	7.3	37	470	1090
				25.5	637	2851	2167	17.5	241	1344	708	8.3	42	480	504
				26.5	681	3024	3462	18.2	232	1208	2392	9.5	145	596	440
				27.2	545	2238	1428	19.2	239	1357	2686	10.2	138	706	866
				28.4	571	2741	1683	20.5	248	1098	1423	11.3	210	1053	712
				29.4	652	2789	2040	21.3	177	957	1617	12.4	285	1191	1159
				30.5	579	2745	874	22.3	161	798	739	13.5	341	1577	1904
				31	(539	2537	2002)	23.3	144	741	1037	14.3	156	1165	1536
								24.4	137	643	852	15.3	109	1096	1104
								25.5	98	614	803	16.1	301	1413	2284
								26.5	125	655	1553	17.5	523	2444	2266
								27.6	134	738	2645	18.5	590	2492	2342
								28.5	183	820	2412	19.5	487	2200	1661
								29.5	194	922	2408	20.5	565	2279	1373
								30.5	203	654	1041	21.5	523	2832	842
												22.3	391	2311	745
												23.5	436	2673	638
												24.3	299	1895	626
												25.3	250	1438	1422
												26.4	249	997	938
												27.6	77	456	1286
												28.5	118	476	932
												29.5	144	898	1039
												30.1	187	531	0

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.		Umbrae.	Whole Spots.	Faculae.
1881. d				1881. d				1881. d				1881. d			
Dec. 1.3	134	908	1814	Dec. 9.3	128	695	1263	Dec. 17.5	197	976	217	Dec. 25.2	8	54	1265
2.4	535	1762	1455	10.3	78	483	2978	18.5	244	1002	979	26.2	31	136	1058
3.5	429	2219	1895	11.2	86	472	3540	19.5	160	756	1546	27.2	67	299	703
4.2	339	1989	2132	12.3	160	658	4096	20.6	121	568	946	28.2	43	332	1864
5.3	357	1865	1488	13.3	136	1061	3216	21.5	187	530	2512	29.1	55	246	1635
6.4	385	1724	1627	14.5	276	1506	1612	22.3	45	366	631	30.2	47	207	1926
7.3	332	1515	1698	15.3	206	1442	1228	23.2	13	201	1137	31.3	17	291	2251
8.3	234	1254	0	16.3	215	1366	272	24.3	0	0	611				

TOTAL PROJECTED AREAS OF SUN SPOTS AND FACULÆ FOR EACH DAY IN THE YEARS 1882-1885, DEDUCED FROM THE MEASUREMENTS OF THE PHOTOGRAPHS OF THE SUN TAKEN AT THE ROYAL OBSERVATORY, GREENWICH, AT DEHRA DÛN IN INDIA, AND AT THE ROYAL ALFRED OBSERVATORY, MAURITIUS.

The Projected Area is the Area as it is measured on the Photograph, uncorrected for the effect of foreshortening, and expressed in millionths of the Sun's apparent disc.

The Greenwich Civil Time is expressed by the month, day of the month (civil reckoning), and decimal of a day, reckoned from Greenwich Mean Midnight. The decimal of the day has not been given for days when neither spots nor faculæ were observed on the photograph.

Dates for which the areas are given in brackets indicate days for which no photographic Record is at present available. In these cases the areas have been obtained by interpolation from the measures of photographs taken on the days immediately preceding and following the day for which the photograph is lacking. These interpolated values have been used in taking the mean daily areas for each rotation and for each year, given in the last section of the volume.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1882 ^d				1882 ^d				1882 ^d				1882 ^d			
Jan. 1 ²	53	242	1070	Feb. 10 ⁵	249	1710	1313	Mar. 22 ⁴	537	2369	2535	May 1 ⁵	83	320	687
2 ²	84	339	304	11 ⁵	325	1498	2199	23 ⁵	496	2329	2320	2 ⁵	110	614	2675
3 ⁵	76	461	1097	12 ⁵	368	1663	1236	24 ⁴	254	1801	2652	3 ⁶	211	730	1321
4 ²	40	199	977	13 ¹	176	1290	3118	25 ⁴	495	2027	838	4 ³	122	663	1607
5 ²	114	493	835	14 ⁵	360	1617	1291	26 ⁵	385	1994	2394	5 ⁵	327	1102	2527
6 ²	134	708	644	15 ⁵	347	1833	688	27 ⁴	311	1514	2839	6 ⁵	416	1565	2495
7 ⁴	120	713	1483	16 ⁴	295	1501	1705	28 ²	130	1081	2703	7 ⁵	444	1848	3532
8 ²	41	354	732	17 ⁶	306	1149	1116	29 ²	112	815	1531	8 ⁴	515	2156	3332
9 ⁴	23	127	993	18 ⁵	205	1006	2676	30 ⁴	126	772	2183	9 ¹	270	1961	3344
10	(46	270	1013)	19 ⁶	120	553	786	31 ⁴	202	761	4527	10 ⁵	595	2470	4353
11	(68	414	1032)	20 ³	52	604	1536					11 ⁵	481	2466	1004
12	(91	557	1052)	21	(122	650	1495)	Apr. 1 ⁴	136	661	2778	12 ⁶	589	3050	2721
13 ⁵	114	700	1072	22 ⁴	191	696	1455	2 ⁶	92	583	1464	13 ⁴	801	3268	3285
14 ²	90	480	1450	23 ³	58	448	1542	3 ⁶	131	549	1401	14 ⁵	801	4009	2754
15 ²	83	360	1099	24 ²	61	390	3171	4 ⁵	213	894	4409	15 ⁴	893	4168	3569
16 ²	73	394	1267	25 ²	25	259	799	5 ⁶	178	875	1922	16 ⁵	1196	4792	3851
17 ²	57	358	1549	26 ⁵	22	136	651	6 ⁶	168	1069	3178	17 ⁶	973	4926	6380
18 ²	49	300	2090	27 ⁴	46	174	773	7 ³	284	1152	1560	18 ⁴	873	5104	2744
19 ³	41	480	1405	28 ³	59	180	1140	8 ⁴	277	1122	4951	19 ⁶	578	3727	1244
20 ²	74	506	1068					9 ⁵	148	734	3441	20 ⁴	461	3114	1816
21 ⁵	161	559	1060	Mar. 1 ⁴	55	273	1471	10 ¹	86	590	4075	21 ⁵	586	2482	3013
22 ⁴	58	444	2925	2 ⁴	98	500	1635	11 ⁵	344	1634	2368	22 ¹	203	1676	4621
23 ³	61	426	1624	3 ⁶	179	929	1670	12 ¹	195	1257	3385	23 ¹	122	1136	3357
24 ⁶	204	553	456	4 ⁵	265	1079	1452	13 ²	217	2141	2554	24 ¹	82	826	1288
25 ³	52	457	149	5 ²	144	814	2063	14 ⁵	665	3907	1668	25 ¹	43	484	2603
26 ³	60	568	575	6 ²	123	928	1096	15 ³	382	3433	4827	26 ⁵	77	270	925
27 ²	85	600	3007	7 ³	138	1005	999	16 ⁵	614	5025	294	27 ⁴	72	292	826
28 ⁴	170	888	285	8 ²	203	1239	1377	17 ⁶	1388	6750	2768	28 ¹	52	298	1111
29 ²	101	662	1811	9 ³	246	1385	3740	18 ⁵	1535	7638	3773	29 ⁵	98	478	1387
30	(112	671	1609)	10 ²	259	1362	6501	19 ²	638	6537	2527	30 ⁴	124	615	366
31	(124	679	1408)	11 ²	282	1686	4757	20 ⁴	1175	6808	3847	31 ⁴	179	712	608
				12 ³	232	1592	3423	21 ⁴	1364	6892	2316				
Feb. 1 ⁴	135	688	1207	13 ⁶	426	1634	1649	22 ²	490	3839	3174	June 1 ³	125	676	1233
2 ²	105	733	3055	14 ⁴	417	1473	1884	23 ⁵	516	3074	2524	2 ³	124	720	1055
3 ⁵	129	650	2371	15 ⁶	182	890	622	24 ⁵	371	1838	3430	3 ⁴	177	679	1853
4 ²	85	636	2337	16 ⁴	159	790	653	25 ²	99	791	2593	4 ⁵	127	591	1725
5 ²	79	612	2161	17 ⁶	132	691	657	26 ⁴	75	459	1461	5 ⁵	96	447	790
6 ²	116	728	2179	18 ⁵	176	778	873	27 ²	52	596	2665	6 ¹	74	400	1097
7 ³	121	1167	567	19 ⁵	160	857	0	28 ⁶	118	463	1063	7 ⁵	41	264	1110
8 ³	208	1498	1032	20 ⁴	314	1575	491	29	(86	316	1176)	8 ¹	32	154	748
9	(229	1604	1172)	21 ⁵	414	2249	2164	30 ⁶	54	169	1289	9 ⁵	79	346	2873

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.
1882 ^d				1882 ^d				1882 ^d				1882 ^d			
June 10 ²	59	312	1173	Aug. 7	(20	143	2021)	Oct. 4 ¹	449	2633	1783	Dec. 1 ²	133	1161	1596
11 ⁴	120	736	2285	8 ⁶	0	15	2266	5 ³	301	1804	1679	2 ³	43	352	1831
12 ⁴	211	948	3807	9 ⁶	52	199	1017	6 ¹	260	1107	1953	3 ²	4	92	2794
13 ³	99	946	1339	10 ⁴	88	646	2211	7 ⁵	45	270	938	4 ⁴	0	0	1497
14 ⁵	259	1531	1750	11 ⁶	263	1261	3166	8 ⁵	28	85	2428	5 ²	0	44	1114
15 ⁵	280	1553	1563	12 ⁴	237	1118	3973	9 ⁴	7	38	1841	6 ²	7	89	614
16 ⁴	330	1755	2947	13	(188	883	2646)	10 ²	17	116	1308	7 ²	31	118	1141
17 ⁵	433	1842	5486	14 ⁵	138	648	1318	11 ²	22	147	1072	8 ²	36	171	795
18	(335	1549	4207)	15 ⁵	132	548	1119	12 ²	34	260	1658	9 ⁵	121	558	1168
19	(236	1256	2927)	16 ⁶	42	271	729	13 ⁴	115	519	1682	10 ²	98	660	739
20 ⁴	138	963	1648	17 ²	16	199	1988	14 ³	91	783	2196	11 ²	78	747	2429
21 ³	37	620	1031	18 ¹	61	325	1089	15 ²	130	849	2013	12 ³	118	817	1185
22 ²	58	572	1056	19	(200	994	2675)	16 ²	118	1165	2398	13 ⁴	145	746	1081
23 ⁴	99	519	1877	20 ⁵	338	1663	4260	17 ³	251	1203	713	14 ³	40	608	66
24 ⁴	58	295	1551	21 ⁵	432	1844	3765	18 ³	273	1786	669	15 ³	51	735	1180
25 ⁵	52	264	2120	22 ⁴	488	2505	1735	19 ³	265	1855	949	16 ²	79	722	2196
26 ⁴	54	279	917	23 ⁵	459	2253	1848	20 ⁵	523	2166	1597	17 ²	62	623	1791
27 ⁵	276	896	2732	24 ⁶	313	1813	760	21 ²	338	1746	1577	18 ²	76	703	1128
28 ⁴	180	1609	953	25 ⁶	342	1457	883	22 ⁶	370	1934	2540	19 ⁵	106	474	689
29 ²	166	1408	1213	26 ⁴	287	1132	2566	23 ⁵	763	2988	3144	20 ⁴	59	393	1730
30 ³	135	1431	2236	27 ⁴	123	943	1433	24 ²	391	2652	4839	21 ⁵	53	230	2608
				28	(140	780	1368)	25 ⁵	588	3033	2096	22 ⁵	77	305	1145
				29 ⁴	157	616	1303	26 ⁵	657	2913	2548	23 ⁵	38	122	0
July 1 ⁴	326	1546	5161	30 ⁶	43	339	1188	27 ³	452	2570	3545	24 ²	23	242	1136
2 ⁵	207	895	4408	31 ⁴	22	185	1932	28 ²	373	2541	2203	25 ²	36	142	1838
3 ⁵	201	826	2394					29 ⁶	749	3174	526	26 ³	41	244	596
4	(168	675	2607)	Sept. 1 ³	58	267	2149	30 ²	458	2566	1316	27 ²	48	226	1885
5 ⁵	134	524	2819	2 ⁴	313	1244	1751	31 ⁴	610	2714	2945	28 ²	64	387	1801
6	(85	332	2872)	3 ⁶	337	1259	1763					29 ³	88	432	2822
7 ⁴	35	140	2924	4 ⁵	404	1667	1603					30 ²	196	801	3289
8 ¹	18	70	2612	5 ³	776	2997	1015					31 ²	302	1461	3690
9 ⁶	0	0	2143	6 ⁵	399	2119	2541	Nov. 1 ⁶	509	2161	2424				
10 ⁴	26	91	2629	7 ⁴	404	1416	1328	2 ⁴	401	1864	1770				
11 ³	39	219	2366	8 ⁴	170	698	1320	3 ⁴	223	1473	1132				
12 ⁵	110	515	1310	9 ⁵	133	514	2595	4 ⁴	254	1568	1649				
13 ²	55	447	1133	10	(80	381	2794)	5 ²	338	1663	3385				
14 ⁵	168	762	1996	11 ⁴	26	247	2992	6 ⁴	294	1829	2211				
15 ⁶	198	1248	1907	12 ⁵	42	239	3531	7 ²	300	1664	5790				
16 ⁵	115	1023	4229	13 ⁵	84	483	1250	8 ⁶	461	1995	2393				
17 ⁴	135	923	3678	14	(139	769	1574)	9 ⁴	449	2230	1770				
18 ⁵	226	1156	3132	15 ⁴	193	1055	1897	10 ⁶	534	1570	1358				
19 ⁵	256	1085	2132	16 ²	85	927	1805	11 ⁵	595	2421	2109				
20 ⁵	210	1032	2386	17	(214	1198	1605)	12 ²	294	1889	2007				
21 ⁵	200	1150	2715	18 ⁴	342	1468	1405	13 ²	482	2307	1733				
22 ¹	137	954	3074	19 ¹	162	1135	3939	14 ²	609	2887	1729				
23 ⁶	186	972	2823	20 ⁴	213	959	785	15 ²	806	3341	2485				
24 ⁴	170	773	4755	21 ³	107	874	1204	16 ¹	872	4005	1568				
25 ²	61	343	1330	22 ⁶	185	788	2204	17 ³	783	4639	2494				
26 ⁴	81	302	2794	23 ²	98	666	1307	18 ⁵	1649	5423	3546				
27 ⁴	59	298	1598	24 ²	83	417	1662	19 ⁶	1324	5371	1101				
28 ²	0	170	1226	25 ⁶	237	1355	1332	20 ⁴	756	4229	1635				
29 ⁴	34	399	2602	26 ⁴	428	1691	2906	21 ⁵	529	3261	507				
30	(41	508	2318)	27 ⁴	510	2292	3236	22 ³	368	3443	2936				
31 ⁵	48	617	2034	28 ⁴	731	2713	3571	23 ⁴	337	2853	2980				
				29 ²	527	3148	2273	24 ⁵	475	2159	2084				
Aug. 1	(124	763	1979)	30 ⁴	777	3695	788	25 ⁴	478	1947	1903				
2 ⁴	200	908	1923					26 ⁵	363	1665	1675				
3 ⁶	111	735	2384	Oct. 1 ⁵	926	3949	1187	27 ⁵	454	2079	1299				
4 ⁵	84	673	1401	2 ⁶	856	3561	2671	28 ⁵	550	2292	3208				
5	(62	472	1588)	3 ⁴	878	3120	2794	29 ²	275	1809	3376				
6 ⁵	39	271	1775					30 ³	132	1534	3184				

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.		
		Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.
1883 ^d					1883 ^d					1883 ^d					1883 ^d				
Jan.	1 ^h 2	359	2019	2965	Mar.	1 ^h 2	36	222	268	Apr.	29 ^h 1	121	495	2354	June	26 ^h 4	392	3020	978
	2 ^h 4	645	2758	1348		2 ^h 6	32	88	691		30 ^h 5	48	314	504		27 ^h 4	590	3798	1273
	3 ^h 2	384	2475	2635		3 ^h 5	0	38	225							28 ^h 4	663	4429	1394
	4 ^h 2	330	2363	2429		4 ^h 5	0	21	1337							29 ^h 4	1004	5090	521
	5 ^h 2	354	2195	1969		5 ^h 5	0	0	1030	May	1 ^h 4	35	297	793		30 ^h 4	925	5296	222
	6 ^h 5	300	1499	1005		6 ^h 4	0	0	939		2 ^h 2	42	208	2136					
	7 ^h 2	145	1014	1924		7 ^h 5	27	125	616		3 ^h 4	11	192	752	July	1 ^h 4	767	4112	182
	8 ^h 4	54	338	564		8 ^h 6	36	255	1307		4 ^h 5	15	139	294		2 ^h 1	467	3827	3050
	9 ^h 4	81	329	1354		9 ^h 4	86	184	2110		5 ^h 5	17	142	737		3 ^h 2	472	3336	1739
	10 ^h 3	106	712	3088		10 ^h 4	27	359	2260		6 ^h 4	20	168	1705		4 ^h 5	501	2856	1059
	11 ^h 2	101	629	1982		11 ^h	(56	589	2011)		7 ^h 1	38	337	2193		5 ^h 4	411	2228	1172
	12 ^h 2	134	803	3002		12 ^h 6	85	819	1762		8 ^h 1	88	493	1154		6 ^h 4	312	1670	1077
	13 ^h 2	177	1267	2070		13 ^h 5	189	1045	1155		9 ^h 1	123	828	1426		7 ^h 5	147	1473	562
	14 ^h 2	249	1631	2685		14 ^h 2	121	975	1399		10 ^h 1	103	789	1604		8 ^h	(149	1337	652)
	15 ^h 5	284	1630	77		15 ^h 4	196	923	452		11 ^h 4	172	1025	1523		9 ^h 6	151	1201	742
	16 ^h 6	400	2437	1440		16 ^h 5	151	1101	2249		12 ^h 2	167	932	3914		10 ^h 4	235	1485	736
	17 ^h 2	238	2342	2550		17 ^h 4	186	1167	1953		13 ^h 5	193	1266	695		11 ^h 5	317	1993	2459
	18 ^h 2	234	2297	2121		18 ^h 2	137	1300	2403		14 ^h 2	189	1207	1615		12 ^h 3	210	2090	1689
	19 ^h 2	363	2120	769		19 ^h 2	133	1322	1787		15 ^h 4	187	918	607		13 ^h 4	365	2649	1893
	20	(257	1524	964)		20 ^h 2	126	1195	1580		16 ^h 5	182	948	546		14	(418	2591	1603)
	21 ^h 2	150	928	1158		21 ^h 2	125	1246	1254		17 ^h 4	246	1099	308		15 ^h 5	471	2532	1312
	22 ^h 4	136	726	1907		22 ^h 6	259	1738	1442		18 ^h 5	137	776	385		16 ^h 2	256	2116	787
	23 ^h 4	74	390	560		23 ^h 5	238	1712	329		19 ^h 5	113	684	676		17	(378	2692	2114)
	24	(81	415	1452)		24 ^h 5	325	1977	291		20 ^h 1	66	456	2793		18	(501	3267	3442)
	25	(87	439	2345)		25 ^h 6	197	1231	768		21 ^h 4	29	160	1066		19 ^h 6	623	3843	4769
	26 ^h 4	94	464	3237		26 ^h 5	158	1136	1330		22 ^h 4	0	12	546		20 ^h 2	436	3847	2924
	27 ^h 2	68	514	1117		27 ^h 4	51	743	807		23 ^h 4	18	110	312		21 ^h 5	638	4356	3440
	28 ^h 2	57	404	2382		28 ^h 4	144	967	658		24 ^h 5	0	47	1403		22	(687	4589	3831)
	29 ^h 2	90	503	1828		29 ^h 4	169	1374	1642		25 ^h 4	0	36	914		23	(736	4821	4222)
	30 ^h 4	82	517	900		30 ^h 2	242	1563	2024		26	(0	18	491)		24 ^h 4	785	5054	4613
	31 ^h 4	55	295	323		31 ^h 6	289	1640	2455		27 ^h 6	0	0	68		25 ^h 6	752	4547	1950
											28 ^h 4	0	0	157		26 ^h 4	507	2710	1249
											29 ^h 4	0	8	230		27 ^h 4	544	2917	946
											30 ^h 6	9	31	71		28 ^h 4	456	2560	1848
											31 ^h 4	26	185	139		29 ^h 4	307	1695	2327
																30	(257	1544	1816)
																31 ^h 5	206	1392	1306
												</							

Total Projected Areas of Sun Spots and Faculæ—continued.

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.		Umbre.	Whole Spots.	Faculæ.
1883 ^d				1883 ^d				1883 ^d				1884 ^d			
Aug. 23.4	175	1048	1568	Oct. 20.5	370	2354	1057	Dec. 17.3	168	1191	3576	Jan. 1	(163	1245	3198)
24.4	171	1118	514	21.5	385	2102	885	18.3	101	776	2351	2.2	84	820	2980
25.4	182	1005	2731	22.5	320	1692	1700	19.3	114	1026	4486	3.1	67	773	1936
26.5	243	1196	316	23.2	213	1123	2528	20.3	165	1721	5327	4.4	61	960	2025
27.4	155	1222	704	24.3	172	966	2969	21.5	384	2751	2500	5.3	146	1641	2932
28.4	502	1763	309	25.4	125	1272	1370	22.3	371	3721	2907	6.2	242	2517	2975
29	(474	2246	662)	26.3	131	1497	1740	23.2	567	4475	2734	7.2	387	3401	2953
30.5	446	2728	1014	27.5	271	2054	1181	24.3	546	4401	1511	8.3	348	3634	3408
31.3	480	3056	1567	28.6	315	2147	1848	25.2	548	4778	2057	9.3	337	3533	2063
				29.6	361	2209	1680	26.2	729	4348	2252	10.3	426	4245	1918
				30.3	397	2512	2600	27.2	587	3659	2110	11.5	783	4351	655
Sept. 1.4	547	3193	344	31.3	460	2647	3387	28.2	518	2926	2844	12.5	410	3302	1512
2	(589	3287	696)					29.2	402	2522	3852	13.2	460	2712	3052
3.4	632	3381	1047	Nov. 1.3	303	2496	2235	30	(322	2096	3634)	14.3	163	1945	2161
4.4	512	3072	1788	2.3	244	1989	3284	31	(243	1671	3416)	15.2	230	1777	2481
5.5	470	2831	881	3.2	312	1935	4042					16	(255	2040	3412)
6	(370	2355	573)	4.2	304	1832	4819					17.3	279	2303	4343
7.1	269	1879	265	5.4	339	1811	2710					18.4	330	2326	3596
8.5	334	1823	2165	6.3	252	1351	2809					19.3	278	2164	2291
9.6	307	1670	1195	7.2	148	1152	2363					20.5	427	2272	4501
10.4	275	1666	3056	8.2	98	723	2015					21.4	311	2215	961
11	(353	2010	2909)	9.5	164	1158	1192					22.3	226	1894	2753
12.5	430	2354	2761	10.5	385	1832	1429					23.1	229	1576	2554
13.5	515	2698	1864	11	(455	2138	1422)					24.5	240	1301	848
14.4	596	3028	2424	12.5	525	2444	1414					25.4	190	1573	1624
15.5	614	2929	118	13.5	546	3093	587					26	(310	1708	3953)
16.5	571	2622	603	14.6	599	3581	603					27.5	430	1843	6281
17.4	418	2352	836	15.6	897	4702	1592					28.5	498	2618	2235
18.5	348	1879	2904	16.2	588	4542	2329					29.4	278	2129	2400
19.5	174	1352	1710	17.5	804	4524	947					30.3	253	2243	1963
20.3	154	1031	653	18.2	549	4188	1934					31.3	269	2668	3688
21.2	105	624	633	19.5	663	4054	3876								
22.3	73	610	1485	20.4	560	3864	3290					Feb. 1.5	516	3287	4132
23.5	70	302	1299	21.4	448	2762	1571					2.3	318	2783	1734
24.6	0	0	383	22.4	403	2707	1245					3	(450	2985	1397)
25.4	0	0	659	23.5	316	2562	3294					4.5	581	3187	1059
26.6	0	48	268	24.4	232	2211	2153					5.2	313	2713	1609
27.4	19	79	807	25.2	134	1574	1783					6.2	333	2684	2296
28.4	41	226	548	26.5	173	905	1936					7.4	310	2368	2240
29.4	33	256	1095	27.5	141	851	908					8.3	264	1858	2028
30.1	39	273	763	28.5	153	801	1226					9.2	166	1499	3189
				29.4	148	889	1277					10.5	312	1735	3695
Oct. 1.5	27	226	598	30.3	176	1236	2392					11.4	303	1603	4484
2.6	67	535	1222									12.5	240	1521	1078
3.3	89	520	1028	Dec. 1	(142	977	2281)					13.4	316	1696	3887
4.3	93	677	1239	2.2	107	717	2169					14.6	580	2478	3240
5.5	150	663	930	3	(68	462	1725)					15.5	454	2575	2136
6.5	180	922	1556	4.4	29	206	1281					16.5	416	2248	2427
7.1	186	1126	1840	5.5	0	0	1199					17	(407	2258	3347)
8.1	278	1437	2424	6.5	14	180	419					18.4	397	2268	4267
9.3	368	2193	2425	7.6	73	400	1340					19	(343	2068	3040)
10.5	678	3585	2681	8.3	79	621	1661					20.5	289	1868	1813
11.2	561	3960	3391	9.2	89	768	1298					21.5	196	1606	192
12.2	630	4173	2023	10.3	151	1325	1401					22.3	151	1631	1354
13.4	1091	5399	1622	11.5	468	2244	2493					23.4	231	1456	1773
14.5	1124	5396	1969	12.3	309	2056	3225					24.5	224	1576	3629
15.4	1145	6142	4155	13.5	386	2457	2325					25.5	289	1364	3631
16.5	700	4546	3007	14.3	269	1886	1419					26.5	360	1853	4046
17.4	498	3333	5361	15.5	174	1168	881					27.2	204	1542	2221
18.4	377	2604	1690	16.5	173	1109	624					28	(313	2001	2989)
19.3	359	2555	2479									29.6	422	2460	3756

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.		
		Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.
1884 ^d				1884 ^d				1884 ^d				1884 ^d				1884 ^d			
Mar.				Apr.				June				Aug.				Sept.			
1'4	304	2469	4540	29'5	233	2444	194	26'5	0	367	338	23'4	123	1096	1115				
2'6	375	2376	2204	30'4	140	2321	78	27'5	48	536	819	24'5	68	1045	1294				
3'3	230	2153	1947					28'4	73	630	432	25'2	219	1226	669				
4	(289)	2097	2170					29'4	85	845	288	26'4	190	1459	1241				
5'5	348	2040	2393	May	1'3	184	2095	1252					27'2	271	1835	1838			
6'3	187	2022	1570		2'4	168	1208	1428					28'4	199	1336	2114			
7'5	300	1691	1247		3'6	29	886	111					29'5	165	1635	524			
8	(302)	1911	991		4'5	39	640	358	July	1	(201	1550	1433)	30	(124	1277	492)		
9'5	304	2132	734		5'4	50	846	279		2	(237	1807	1519)	31	(83	919	460)		
10'6	314	2256	1088		6'4	27	589	396		3'3	273	2064	1606						
11'2	184	1995	1947		7'2	54	641	1972		4'2	417	2457	1723						
12'6	288	1616	488		8'3	35	299	1348		5'4	257	2015	2194						
13	(260	1688	702)		9'5	94	974	460		6	(204	1550	1978)						
14'6	232	1760	916		10	(209	1649	775)		7	(152	1085	1761)						
15'5	423	2657	1370		11'2	323	2323	1089		8'3	99	620	1545						
16'4	314	2368	675		12'3	279	2343	2033		9'2	116	617	1743						
17'5	376	2144	1220		13'2	315	2021	1840		10'2	56	497	1506						
18'4	348	2318	2247		14'3	291	1847	962		11'2	49	375	1074						
19'5	336	2248	1395		15'3	246	1598	1423		12'3	137	635	1187						
20'4	328	2172	1212		16'3	322	1542	2780		13	(123	586	1227)						
21'5	336	1839	2672		17'3	227	1686	2726		14	(109	538	1268)						
22'2	314	1949	3465		18'1	293	1712	1878		15	(95	489	1308)						
23'6	289	1784	1398		19'3	317	2015	3399		16	(81	441	1349)						
24'3	225	1740	2190		20	(300	1804	2878)		17	(67	392	1389)						
25'3	287	1562	1510		21'3	282	1592	2357		18	(53	344	1430)						
26'3	203	1291	2775		22'3	315	1792	2179		19'4	39	296	1470						
27'3	178	978	2048		23'3	274	1621	1801		20'4	44	296	1439						
28'3	116	815	2481		24'6	204	1803	263		21	(61	398	1224)						
29'3	66	713	2475		25'1	357	1995	1591		22	(77	499	1010)						
30'2	42	508	1504		26'2	298	1956	2062		23	(94	600	796)						
31'3	54	615	2952		27'1	361	1952	3287		24'4	111	702	581						
					28'3	379	2382	2565		25'5	125	684	613						
					29'2	398	2338	1733		26'5	125	856	1142						
					30'6	304	1832	1465		27'2	96	742	1138						
					31'2	202	1942	1983		28	(110	874	1135)						
										29	(125	1005	1133)						
										30	(139	1137	1130)						
										31'4	154	1269	1128						

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.			Greenwich Civil Time.	Projected Areas.		
	Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.		Umbrae.	Whole Spots.	Faculæ.
1884 ^d				1884 ^d				1885 ^d				1885 ^d			
Oct. 20 ^h 2	62	330	1107	Dec. 17 ^h 2	108	764	2382	Jan. 1 ^h 2	36	434	1914	Mar. 1 ^h 4	156	1222	1511
21 ^h 2	83	444	1227	18 ^h 2	107	805	2221	2 ^h 3	58	339	2985	2 ^h 6	147	1608	1126
22 ^h 5	90	908	1451	19 ^h 5	118	1348	150	3 ^h 2	119	489	1743	3 ^h 2	289	1749	794
23 ^h 5	191	1239	2489	20 ^h 2	175	1419	933	4 ^h 2	83	486	3831	4 ^h 5	402	2744	658
24	(382)	1958	1814	21 ^h 5	321	1812	1139	5 ^h 2	40	525	1821	5 ^h 6	245	3271	730
25 ^h 5	573	2677	1138	22 ^h 5	354	2152	1515	6 ^h 5	5	127	0	6 ^h 2	470	3235	1648
26 ^h 5	551	2754	1807	23	(310)	2027	1539	7 ^h 5	0	69	0	7 ^h 5	347	2737	1356
27 ^h 4	286	2104	1075	24 ^h 3	266	1901	1562	8 ^h 5	0	60	0	8 ^h 2	324	2668	3232
28 ^h 3	256	1879	1708	25 ^h 2	282	2330	2737	9 ^h 5	0	36	41	9 ^h 5	178	1389	4261
29 ^h 6	332	1877	471	26 ^h 3	250	1827	1378	10 ^h 3	4	40	2084	10 ^h 5	115	1017	1648
30 ^h 4	267	1701	895	27 ^h 2	200	1838	2609	11	(9)	70	2013	11 ^h 5	97	993	2537
31 ^h 4	293	1621	2687	28 ^h 2	253	1512	1886	12 ^h 5	14	99	1942	12 ^h 4	150	986	1538
				29 ^h 2	175	1226	1716	13 ^h 5	46	167	944	13 ^h 5	207	1071	1441
Nov. 1 ^h 2	264	1341	3739	30 ^h 2	113	929	1979	14 ^h 2	30	161	1729	14 ^h 3	138	998	1848
2 ^h 2	86	656	2625	31 ^h 3	72	734	2115	15 ^h 2	36	104	2375	15 ^h 5	129	986	685
3 ^h 4	34	244	823					16 ^h 3	17	145	984	16 ^h 3	85	785	1164
4 ^h 6	30	197	778					17 ^h 2	26	262	1269	17 ^h 4	88	528	501
5 ^h 4	18	116	2171					18 ^h 2	40	476	2723	18 ^h 5	42	384	962
6 ^h 3	21	110	1675					19	(195)	1247	2475	19 ^h 4	22	260	772
7 ^h 4	8	40	522					20 ^h 2	349	2018	2226	20 ^h 6	11	126	1270
8 ^h 0	0	0	781					21 ^h 2	313	2223	3281	21 ^h 2	27	76	1963
9 ^h 2	0	15	2782					22 ^h 2	322	1890	3119	22 ^h 2	2	21	2166
10 ^h 5	96	639	1181					23 ^h 4	224	1855	721	23 ^h 4	0	0	300
11 ^h 3	167	1077	2598					24 ^h 2	282	1288	1785	24 ^h 4	2	35	0
12 ^h 3	189	1268	2651					25 ^h 5	148	923	333	25 ^h 4	10	99	325
13 ^h 2	156	1101	2738					26 ^h 2	165	1093	2969	26 ^h 5	27	390	848
14 ^h 5	73	777	326					27 ^h 5	164	1192	784	27 ^h 5	58	575	1196
15 ^h 5	26	315	0					28 ^h 2	224	1396	2339	28 ^h 5	113	870	1440
16 ^h 2	38	253	2110					29 ^h 1	246	1345	2701	29 ^h 2	119	874	1100
17 ^h 3	17	175	1237					30 ^h 6	153	1077	0	30 ^h 4	77	748	0
18 ^h 3	30	213	2797					31 ^h 2	304	1344	2678	31 ^h 4	139	1019	48
19 ^h 5	80	417	1046												
20 ^h 3	64	724	3109					Feb. 1 ^h 4	321	1492	1994	Apr. 1 ^h 4	175	964	559
21 ^h 3	131	713	1677					2 ^h 5	217	1477	0	2 ^h 4	68	1069	65
22 ^h 2	113	835	1161					3 ^h 2	294	1905	1304	3 ^h 4	88	886	0
23 ^h 2	134	995	1630					4 ^h 4	287	2225	241	4 ^h 4	112	1091	270
24 ^h 3	141	1216	888					5 ^h 5	335	1825	275	5 ^h 5	129	1261	208
25 ^h 3	168	1052	1317					6 ^h 2	313	1697	851	6 ^h 2	264	1445	3992
26 ^h 3	98	959	2486					7 ^h 5	258	1786	375	7 ^h 4	186	1477	284
27	(98)	831	2644					8 ^h 2	327	2353	860	8 ^h 2	210	2105	2355
28 ^h 3	98	702	2802					9 ^h 5	322	2076	1883	9 ^h 2	271	2613	1993
29 ^h 5	102	581	776					10 ^h 5	309	1808	1293	10 ^h 1	430	3082	961
30	(129)	1101	1635					11 ^h 2	180	1783	3188	11 ^h 5	306	2520	373
Dec. 1 ^h 2	156	1621	2493					12 ^h 5	265	1622	1540	12 ^h 2	229	2445	969
2 ^h 3	218	1575	1632					13 ^h 3	257	1612	2109	13 ^h 3	206	2166	1619
3 ^h 3	231	1477	895					14 ^h 3	255	1850	1622	14 ^h 5	95	1070	347
4 ^h 5	239	1439	402					15 ^h 2	293	2105	761	15 ^h 5	70	612	278
5 ^h 5	202	1338	427					16 ^h 2	335	2591	1555	16 ^h 2	72	524	2037
6 ^h 3	156	1323	2540					17 ^h 4	428	2498	735	17 ^h 4	40	457	1301
7 ^h 4	128	996	874					18 ^h 5	272	2026	0	18 ^h 4	35	401	200
8 ^h 3	117	863	1843					19 ^h 1	239	1870	1360	19 ^h 5	40	376	90
9 ^h 2	137	849	2177					20 ^h 2	239	1299	3952	20 ^h 4	59	443	1118
10 ^h 3	156	956	1434					21 ^h 4	158	918	1250	21 ^h 4	78	589	1802
11 ^h 3	124	979	1719					22 ^h 2	128	1051	2051	22 ^h 4	101	850	1859
12 ^h 3	96	793	908					23 ^h 5	77	671	1036	23 ^h 4	107	924	1670
13 ^h 2	118	699	1443					24 ^h 5	62	538	1329	24 ^h 2	83	789	820
14 ^h 4	94	583	2189					25 ^h 2	24	414	1849	25 ^h 4	116	794	1839
15 ^h 3	65	346	2096					26 ^h 2	33	195	1144	26 ^h 5	112	783	1175
16 ^h 5	64	456	352					27 ^h 2	53	283	2574	27 ^h 4	118	884	1238
								28 ^h 2	107	760	2952	28 ^h 4	190	1186	867

Total Projected Areas of Sun Spots and Faculæ—*continued.*

Projected Areas.				Projected Areas.				Projected Areas.				Projected Areas.			
Greenwich Civil Time.	Umbrae.	Whole Spots.	Faculae.	Greenwich Civil Time.	Umbrae.	Whole Spots.	Faculae.	Greenwich Civil Time.	Umbrae.	Whole Spots.	Faculae.	Greenwich Civil Time.	Umbrae.	Whole Spots.	Faculae.
1885 ^d				1885 ^d				1885 ^d				1885 ^d			
Apr. 29 ³	197	1306	1526	June 24 ⁴	164	2771	2675	Aug. 18 ²	171	710	2664	Oct. 13 ²	15	121	1536
30 ⁴	143	1466	1095	25 ³	116	2014	3438	19 ⁵	142	626	2081	14 ²	4	28	850
				26	(107	1783	1851)	20 ⁵	79	566	1027	15 ⁴	0	0	222
				27 ⁴	97	1551	263	21 ⁵	72	354	1571	16 ⁴	0	0	759
May 1 ⁴	199	1594	1951	28 ⁴	207	1635	631	22 ⁵	58	353	200	17 ²	5	134	1591
2 ⁴	194	1693	1513	29 ⁶	120	1726	436	23 ²	82	477	1185	18 ¹	60	386	1580
3 ⁶	164	1700	1384	30 ⁴	148	2107	883	24 ⁶	47	555	1858	19 ⁴	58	741	984
4 ⁵	215	1801	2256					25 ⁵	37	518	907	20 ⁵	73	716	1275
5 ³	325	1858	1094					26 ⁵	43	499	1082	21 ³	91	826	1557
6 ⁵	293	2261	1255					27 ⁵	80	797	313	22 ⁴	129	1064	1176
7 ⁵	215	2127	2092	July 1 ⁵	250	2281	1711	28 ⁵	40	994	590	23 ²	184	1299	1521
8 ⁴	313	2238	1398	2 ⁴	202	1993	2150	29 ⁴	99	1202	569	24 ²	265	1278	519
9 ⁴	191	1763	1290	3 ⁵	205	1761	1629	30	(198	1483	285)	25 ⁶	108	1363	237
10 ⁵	62	1082	639	4 ⁵	213	1671	707	31 ²	297	1764	1416	26 ³	226	1797	2354
11 ⁴	69	870	266	5 ³	334	1679	3416					27 ⁴	209	1667	2764
12 ⁴	62	615	1223	6 ⁵	310	2141	1191	Sept. 1 ⁴	157	1920	438	28 ⁴	127	1313	1349
13	(46	419	859)	7 ⁵	197	2669	758	2 ⁴	315	2581	1938	29 ⁴	140	1274	1061
14 ⁴	29	223	494	8 ⁴	292	2397	1122	3 ⁴	147	1678	1235	30 ²	201	1307	1840
15 ⁴	16	139	520	9 ⁵	206	1975	2365	4 ⁵	93	1273	185	31 ²	191	1183	1416
16 ⁴	23	172	768	10 ⁴	83	1640	2014	5 ⁴	124	1178	300				
17 ⁵	12	208	580	11 ⁴	82	1244	1804	6 ⁴	57	735	868	Nov. 1 ⁴	73	729	680
18 ⁴	79	589	453	12 ²	168	897	3084	7 ³	81	551	1742	2 ⁴	71	542	94
19 ⁴	95	896	596	13 ⁵	188	1339	2015	8 ⁴	67	556	887	3 ¹	95	545	1177
20 ⁵	351	2030	1948	14 ⁵	186	1542	1798	9 ⁴	91	674	588	4 ¹	93	455	1189
21 ⁶	362	2431	2889	15 ⁵	153	1664	981	10 ³	196	948	2414	5 ¹	75	325	587
22 ⁵	451	2743	1367	16 ⁵	131	1688	1053	11 ²	229	954	1709	6 ¹	72	372	1408
23 ⁴	349	2615	1790	17 ⁵	250	1951	1694	12 ²	155	1187	402	7 ¹	67	314	941
24 ⁴	381	2858	2282	18 ²	430	2177	1874	13 ²	194	1379	583	8 ¹	47	228	881
25	(379	2686	2332)	19 ⁶	245	1709	1733	14 ⁶	128	1332	457	9 ¹	52	355	624
26 ³	377	2514	2382	20 ⁶	161	1657	2158	15 ⁴	95	816	737	10 ¹	124	728	1111
27 ⁴	221	2009	2353	21 ⁵	154	1588	1096	16 ⁶	96	802	748	11 ¹	89	781	1218
28 ⁵	128	1116	3279	22 ⁵	102	1462	714	17 ²	139	743	1990	12 ¹	77	564	1613
29 ⁴	70	895	3969	23 ⁴	234	1508	1170	18 ⁵	67	526	1262	13 ²	125	627	1730
30 ⁴	51	526	2473	24 ⁵	186	1361	1104	19 ²	45	413	838	14 ¹	187	891	1149
31 ²	85	604	3149	25 ⁶	205	1046	685	20 ⁶	0	5	231	15 ⁵	197	1272	0
				26 ⁵	88	986	670	21 ⁴	12	188	804	16 ⁴	212	1534	288
				27 ⁴	119	870	1034	22 ⁴	51	406	454	17 ⁵	230	1583	222
				28 ⁴	169	870	3392	23 ⁴	21	262	347	18 ⁴	229	1594	543
				29 ⁵	51	619	2809	24 ⁶	4	245	0	19 ²	167	1439	1003
				30 ⁵	56	556	1642	25 ⁴	80	754	966	20 ¹	214	1072	645
				31 ⁵	33	581	697	26 ⁴	80	935	361	21 ⁵	104	726	531
								27 ¹	239	1063	753	22 ²	104	645	1281
								28 ⁵	121	952	578	23 ²	76	399	1418
								29 ²	164	1032	1147	24 ²	15	217	1211
								30 ²	147	709	1590	25 ²	0	0	405
												26 ³	0	32	639
												27 ⁵	0	0	246
												28 ²	13	52	412
												29 ¹	4	27	437
												30 ¹	0	0	820

Total Projected Areas of Sun Spots and Faculæ—*continued*.

Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.			Greenwich Civil Time.		Projected Areas.						
		Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.			Umbrae.	Whole Spots.	Faculae.				
1885 ^d Dec.		8.2	0	0	657	1885 ^d Dec.		14.2	48	324	1216	1885 ^d Dec.		20.2	75	396	827	1885 ^d Dec.		26.1	121	647	475
		9.2	3	28	683			15.5	49	280	0			21.3	49	428	2021			27.1	126	746	369
		10.5	4	52	121			16.5	53	275	0			22.2	68	420	1801			28.1	86	642	286
		11.4	25	148	812			17.2	49	268	792			23.1	73	424	1271			29.5	54	423	249
		12.2	33	259	852			18.2	34	201	987			24.5	79	591	892			30.1	65	461	508
		13.2	49	373	919			19.1	68	303	822			25.1	124	711	895			31.2	50	383	614

ROYAL OBSERVATORY, GREENWICH.

MEAN AREAS

AND

MEAN HELIOGRAPHIC LATITUDE

OF

SUN SPOTS AND FACULÆ

FOR EACH ROTATION OF THE SUN

FROM

1874 APRIL 27 TO 1886 JANUARY 16

AND

FOR EACH YEAR

FROM

1874-1885.

MEAN AREAS of SUN SPOTS and FACULÆ, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, at the OBSERVATORY of HARVARD COLLEGE, CAMBRIDGE, U.S.A., at the MELBOURNE OBSERVATORY, AUSTRALIA, at DEHRA DÛN in INDIA, and at the ROYAL ALFRED OBSERVATORY, MAURITIUS, for each synodic ROTATION of the SUN, and for each YEAR, from 1874 April 27 to 1886 January 16.

The Mean Areas have been formed by taking the Means of the Areas for each day of observation throughout each Rotation of the Sun and throughout each Year, the projected Areas being the Areas as measured on the photographs and expressed in millionths of the Sun's apparent disk, and the Areas Corrected for Foreshortening being expressed in millionths of the Sun's visible hemisphere.

The Rotations adopted in the following table (which is intended to supersede those for the years 1873-1885 printed in the Greenwich Observations for 1884 and 1885) correspond to the synodic rotation of the Sun, and the commencement of each is defined by the coincidence of the assumed prime meridian with the central meridian, the assumed prime meridian being that meridian which passed through the ascending node at mean noon on January 1, 1854, and the assumed period of the Sun's sidereal rotation being 25·38 days. The rotations adopted in the volumes of Greenwich Observations, 1877 to 1883, correspond, on the other hand, to the sidereal rotation of the Sun, the commencement of each being defined by the coincidence of the assumed prime meridian with the ascending node. The numeration of the rotations is in continuation of Carrington's series (*Observations of Solar Spots made at Redhill* by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The dates of commencement of the rotations are given in GREENWICH CIVIL TIME, reckoning from midnight.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Mean of Daily Areas.					
			Projected.			Corrected for Foreshortening.		
			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.
275	1874 April 27·56	17	98	833	39	64	597	68
276	May 24·79	13	42	335	185	28	243	211
277	June 20·99	20	219	1590	921	140	1069	1171
278	July 18·19	14	251	1399	1897	198	1175	2325
279	August 14·42	20	115	767	1138	80	566	1452
280	September 10·67	14	149	1001	1749	113	788	1932
281	October 7·95	13	56	318	791	42	242	841
282	November 4·23	14	107	643	629	67	458	767
283	December 1·55	9	35	304	226	21	192	283
284	December 28·88	5	60	307	1083	41	207	1336
285	1875 January 25·21	22	31	173	607	29	155	704
286	February 21·55	25	116	679	633	87	530	734
287	March 20·87	24	95	570	570	63	395	659
288	April 17·16	25	85	571	489	60	417	577
289	May 14·39	21	30	217	344	19	137	387
290	June 10·66	21	109	593	272	75	416	328
291	July 7·80	24	24	156	317	15	97	433
292	August 4·01	21	25	136	268	20	117	342
293	August 31·26	20	2	22	406	3	21	466
294	September 27·51	19	19	137	306	12	87	371
295	October 24·81	17	60	338	375	41	236	387
296	November 21·11	13	72	415	340	51	323	398
297	December 18·42	11	20	158	163	11	90	218
298	1876 January 14·76	17	62	406	200	44	322	209
299	February 11·11	24	76	428	201	48	271	283
300	March 9·44	24	75	373	414	52	264	483
301	April 5·74	25	2	28	242	1	19	304
302	May 2·99	23	17	72	291	11	48	340
303	May 30·21	21	1	6	128	1	5	140
304	June 26·41	23	17	98	270	14	80	287
305	July 23·61	23	10	56	159	6	36	185
306	August 19·84	19	14	87	222	9	59	248

Mean Areas of Sun Spots and Faculæ—*continued*.

No. of Rotation.	Date of Commencement of each Rotation.			No. of Days on which Photographs were taken.	Mean of Daily Areas.					
					Projected.			Corrected for Foreshortening.		
					Umbrae.	Whole Spots.	Faculæ.	Umbrae.	Whole Spots.	Faculæ.
307	1876	September	16.09	20	42	220	151	27	145	186
308		October	13.37	18	29	177	251	28	177	321
309		November	9.67	16	23	105	91	18	81	127
310		December	6.99	13	52	314	47	41	233	52
311	1877	January	3.32	23	37	279	129	28	205	161
312		January	30.66	15	10	59	69	10	56	97
313		February	27.00	16	20	142	159	16	101	206
314		March	26.31	17	17	108	189	14	85	235
315		April	22.58	20	34	158	211	22	106	240
316		May	19.81	18	32	146	145	19	90	155
317		June	16.02	20	6	23	107	4	14	125
318		July	13.22	17	3	10	66	2	6	73
319		August	9.43	17	11	52	172	11	54	191
320		September	5.68	16	21	98	174	14	73	134
321		October	2.95	15	1	14	54	3	40	58
322		October	30.24	20	104	592	225	71	403	273
323		November	26.55	18	29	166	69	18	99	69
324		December	23.87	19	0	1	70	0	2	81
325	1878	January	20.21	22	11	66	47	5	28	30
326		February	16.55	27	13	71	94	7	39	78
327		March	15.88	25	4	26	45	2	13	68
328		April	12.17	25	0	0	5	0	0	6
329		May	9.42	27	24	129	232	15	81	203
330		June	5.63	27	4	20	72	4	24	98
331		July	2.82	25	0	1	31	0	0	32
332		July	30.03	25	0	0	9	0	0	14
333		August	26.27	28	19	87	84	13	61	103
334		September	22.53	27	0	0	54	0	0	65
335		October	19.81	27	9	48	67	6	34	73
336		November	16.12	27	0	2	28	0	3	34
337		December	13.43	28	0	1	15	1	2	25
338	1879	January	9.77	26	0	2	95	0	1	121
339		February	6.11	25	0	0	14	0	0	15
340		March	5.44	28	0	0	55	0	0	72
341		April	1.75	23	18	101	158	10	66	199
342		April	29.01	24	2	12	167	1	6	143
343		May	26.23	23	0	0	15	0	0	11
344		June	22.44	22	23	129	207	15	84	232
345		July	19.64	23	6	19	48	6	18	52
346		August	15.86	20	19	99	190	14	73	153
347		September	12.11	23	7	25	205	5	21	218
348		October	9.39	22	19	113	160	18	94	195
349		November	5.68	24	29	168	196	23	139	243
350		December	2.99	24	12	68	217	7	37	204
351		December	30.32	26	67	347	565	52	270	657
352	1880	January	26.66	25	94	470	875	74	372	921
353		February	23.00	27	51	232	861	36	180	927
354		March	21.32	26	35	151	424	24	107	461
355		April	17.60	27	94	461	949	77	405	926
356		May	14.84	27	101	462	407	63	286	478
357		June	11.04	23	158	746	796	122	557	1077
358		July	8.24	24	60	325	1109	49	265	1119
359		August	4.45	25	206	993	849	147	731	1031

Mean Areas of Sun Spots and Faculæ—*continued.*

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Mean of Daily Areas.							
			Projected.			Corrected for Foreshortening.				
			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.		
		d								
360	1880 August	31.69	26	275	1148	1051	207	896	1178	
361	September	27.96	26	201	966	1005	146	734	1270	
362	October	25.25	27	79	371	647	50	231	739	
363	November	21.56	22	189	979	1126	151	759	1375	
364	December	18.88	24	135	586	817	100	437	929	
365	1881 January	15.21	27	260	1071	1586	187	772	1772	
366	February	11.56	26	131	514	2542	106	420	2894	
367	March	10.88	27	239	1133	2138	160	760	2210	
368	April	7.18	27	135	630	1490	93	475	1802	
369	May	4.44	27	122	569	1401	93	424	1542	
370	May	31.65	23	159	797	1836	117	587	1973	
371	June	27.85	24	223	1112	2254	161	803	2420	
372	July	25.06	25	240	1133	1832	165	776	2015	
373	August	21.28	25	307	1569	1821	214	1088	2116	
374	September	17.54	27	154	828	1616	113	612	1949	
375	October	14.82	27	155	832	1286	103	585	1497	
376	November	11.12	28	321	1595	1319	227	1142	1517	
377	December	8.44	27	103	551	1516	78	434	1959	
378	1882 January	4.77	22	89	508	1248	68	397	1416	
379	February	1.11	26	164	917	1599	118	677	1877	
380	February	28.45	27	262	1325	1954	189	952	2031	
381	March	27.76	27	437	2615	2820	313	1935	2907	
382	April	24.03	26	429	2099	2553	343	1688	2736	
383	May	21.26	27	143	790	1758	107	582	1880	
384	June	17.46	24	137	734	2405	84	493	2298	
385	July	14.66	23	109	658	2344	82	495	2542	
386	August	10.88	24	248	1160	1947	182	859	1872	
387	September	7.12	25	324	1514	2062	255	1202	2185	
388	October	4.40	27	305	1592	1940	245	1296	2134	
389	October	31.69	27	553	2664	2136	398	2016	2424	
390	November	28.00	28	88	589	1545	61	421	1730	
391	December	25.32	26	225	1365	1933	161	966	2192	
392	1883 January	21.66	25	175	1106	1710	123	794	1792	
393	February	18.00	26	64	432	1402	44	308	1549	
394	March	17.33	28	222	1515	1348	151	1073	1617	
395	April	13.62	26	163	1170	1355	105	755	1483	
396	May	10.86	26	136	803	892	99	596	1031	
397	June	7.07	27	335	2242	1222	224	1563	1499	
398	July	4.27	20	428	2765	2046	296	2037	2130	
399	July	31.47	25	98	625	1366	78	551	1776	
400	August	27.71	23	394	2176	1324	278	1589	1647	
401	September	23.97	27	337	1971	1749	253	1478	2311	
402	October	21.26	27	361	2197	2060	248	1606	2469	
403	November	17.56	25	233	1589	1893	180	1302	2268	
404	December	14.88	24	310	2485	2720	220	1909	3151	
405	1884 January	11.22	25	345	2392	2562	240	1716	2858	
406	February	7.56	23	312	1937	2795	234	1434	3154	
407	March	5.89	25	249	1688	1693	168	1181	2168	
408	April	2.19	25	291	2207	1879	210	1651	2157	
409	April	29.45	26	211	1580	1425	147	1184	1751	
410	May	26.68	19	154	1073	1200	107	795	1602	
411	June	22.88	17	119	849	1188	83	661	1209	
412	July	20.08	21	125	939	1060	93	757	1151	
413	August	16.30	24	124	929	1203	89	646	1534	
414	September	12.55	22	327	1991	1667	235	1477	2010	

Mean Areas of Sun Spots and Faculæ—*continued.*

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Mean of Daily Areas.						
			Projected.			Corrected for Foreshortening.			
			Umbrae.	Whole Spots.	Faculae.	Umbrae.	Whole Spots.	Faculae.	
415	1884 October	9.83	26	171	1076	1642	115	760	2029
416	November	6.13	26	99	742	1700	63	471	1988
417	December	3.44	26	175	1241	1561	117	852	1932
418	December	30.77	25	98	643	1756	69	473	1936
419	1885 January	27.11	27	264	1712	1396	173	1178	1688
420	February	23.45	28	144	1133	1596	100	800	1937
421	March	22.76	27	131	1141	854	89	791	1038
422	April	19.04	26	138	1140	1235	95	844	1507
423	May	16.27	27	247	1789	1731	168	1270	2016
424	June	12.47	26	244	2432	1448	168	1712	1817
425	July	9.67	27	141	1170	1508	104	914	1829
426	August	5.89	26	118	951	1284	77	670	1492
427	September	2.13	28	110	863	876	77	633	1100
428	September	29.40	27	125	870	1179	93	666	1404
429	October	26.70	27	132	891	1013	94	620	1136
430	November	23.01	28	22	142	589	17	120	723
431	December	20.33	26	135	936	842	90	654	975

The above Table supersedes the corresponding Tables given in the volumes of Greenwich Observations for 1884 and 1885.

MEAN AREAS of SUN SPOTS and FACULÆ for each YEAR from 1874 to 1885.

The Mean Projected Areas are expressed in millionths of the Sun's apparent disk.

The Mean Areas corrected for foreshortening are expressed in millionths of the Sun's visible hemisphere.

Year.	No. of Days on which Photographs were taken.	Mean of Daily Areas.					
		Projected.			Corrected for Foreshortening.		
		Umbrae.	Whole Spots.	Faculæ.	Umbrae.	Whole Spots.	Faculæ.
1874	141	121	820	826	84	604	994
1875	263	57	341	426	40	248	503
1876	271	31	175	217	22	126	257
1877	235	26	150	138	19	108	162
1878	347	6	34	62	4	22	67
1879	318	10	55	129	7	38	136
1880	341	124	588	813	91	440	921
1881	348	196	946	1723	140	681	1951
1882	343	248	1293	2015	188	1000	2154
1883	340	251	1600	1605	175	1154	1864
1884	315	208	1458	1688	148	1079	2034
1885	359	145	1125	1251	100	807	1485

The Means of Daily Areas for the Year 1874 refer to a period of eight months, from 1874 April 27 to 1874 December 18.

Many of the photographs taken at Greenwich during the early part of the Year 1874 do not show the Faculæ with sufficient distinctness to allow of their measurement.

The above Table supersedes the corresponding Tables given in the volumes of Greenwich Observations for 1884 and 1885.

MEAN HELIOGRAPHIC LATITUDE of SUN SPOTS, as measured on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, at the OBSERVATORY of HARVARD COLLEGE, CAMBRIDGE, U.S.A., at the MELBOURNE OBSERVATORY, AUSTRALIA, at DEHRA DÛN in INDIA, and at the ROYAL ALFRED OBSERVATORY, MAURITIUS, for each synodic ROTATION of the SUN, and for each YEAR, from 1874 April 27 to 1886 January 16.

The numbers given in the accompanying table have been formed as follows:—

The Heliographic Latitude of each Spot for each day has been multiplied by its Area (corrected for foreshortening), and the sum of the products, for Spots North of the Equator, has been divided by the sum of the corresponding Areas to form Mean Heliographic Latitude of Spotted Area North of Equator; similarly for Spots South of the Equator. In forming the Mean Heliographic Latitude of entire Spotted Area, the algebraic sum of the products for Spots North and South of the Equator has been divided by the sum of the Areas; and for the Mean Distance from the Equator for all Spots, the numerical sum of the products, without regard to the sign of the latitude, has been similarly divided.

The mean Areas have been formed by dividing the sum of the Daily Areas (corrected for foreshortening) by the number of days of observation for each Rotation of the Sun and for each Year, and are expressed in millionths of the Sun's visible hemisphere.

The dates of commencement of the Rotations are given in GREENWICH CIVIL TIME, reckoning from midnight.

No. of Rotation	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots North of the Equator.		Spots South of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
			Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
	d							
275	1874 Apr. 27.56	17	117	8.06	481	8.71	— 5.42	8.58
276	May 24.79	13	159	11.19	84	8.84	+ 4.29	10.38
277	June 20.99	20	613	12.09	457	9.03	+ 3.07	10.78
278	July 18.19	14	861	7.27	314	18.13	+ 0.48	10.17
279	Aug. 14.42	20	140	2.94	426	15.20	— 10.62	12.17
280	Sept. 10.67	14	43	11.06	745	11.93	— 10.68	11.88
281	Oct. 7.95	13	56	9.51	186	12.87	— 7.66	12.09
282	Nov. 4.23	14	214	9.50	244	15.58	— 3.86	12.73
283	Dec. 1.55	9	163	6.27	29	6.78	+ 4.38	6.35
284	Dec. 28.88	5	128	6.57	79	13.42	— 1.08	9.20
285	1875 Jan. 25.21	22	130	17.29	25	11.95	+ 12.53	16.42
286	Feb. 21.55	25	373	16.23	157	9.17	+ 8.73	14.14
287	Mar. 20.87	24	193	13.39	202	14.30	— 0.77	13.85
288	Apr. 17.16	25	312	9.38	106	10.02	+ 4.47	9.55
289	May 14.39	21	8	10.37	129	10.34	— 9.15	10.34
290	June 10.60	21	171	6.96	245	8.28	— 2.01	7.74
291	July 7.80	24	97	10.22	0	...	+ 10.22	10.22
292	Aug. 4.01	21	116	7.39	1	10.30	+ 7.29	7.40
293	Aug. 31.26	20	19	13.30	3	16.29	+ 9.84	13.65
294	Sept. 27.51	19	17	10.51	69	8.25	— 4.48	8.70
295	Oct. 24.81	17	196	11.05	40	7.39	+ 7.93	10.43
296	Nov. 21.11	13	21	12.01	302	8.66	+ 11.96	8.88
297	Dec. 18.42	11	5	10.23	85	9.86	— 8.75	9.86
298	1876 Jan. 14.76	17	44	12.27	279	12.51	— 9.15	12.48
299	Feb. 11.11	24	18	9.06	253	13.04	— 11.56	12.78
300	Mar. 9.44	24	194	14.66	70	8.64	+ 8.46	13.06
301	Apr. 5.74	25	9	10.91	10	10.68	— 0.83	10.78
302	May 2.99	23	0	...	48	13.54	— 13.54	13.54
303	May 30.21	21	2	0.60	3	0.66	— 0.19	0.63
304	June 26.41	23	23	6.12	57	7.30	— 3.40	6.96
305	July 23.61	23	4	10.10	32	8.95	— 6.95	9.06
306	Aug. 19.84	19	0	...	59	11.03	— 11.03	11.03
307	Sept. 16.09	20	2	11.40	143	5.97	— 5.80	6.02

Mean Heliographic Latitude of Sun Spots—*continued*.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots North of the Equator.		Spots South of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
			Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
308	1876 Oct. 13 ³⁷	18	33	10 ⁴⁹	144	11 ¹⁶	— 7 ¹⁷	11 ⁰⁴
309	Nov. 9 ⁶⁷	16	19	1 ⁹¹	62	10 ⁶⁹	— 7 ⁷³	8 ⁶⁴
310	Dec. 6 ⁹⁹	13	233	10 ³⁵	0	...	+ 10 ³⁵	10 ³⁵
311	1877 Jan. 3 ³²	23	199	9 ⁹⁴	6	8 ⁰¹	+ 9 ³⁹	9 ⁸⁸
312	Jan. 30 ⁶⁶	15	52	9 ¹⁶	4	7 ⁴⁸	+ 8 ⁰⁸	9 ⁰⁵
313	Feb. 27 ⁰⁰	16	14	7 ⁴⁶	86	10 ⁴⁸	— 7 ⁹⁰	10 ⁰⁴
314	Mar. 26 ³¹	17	2	0 ⁴⁰	83	14 ⁴³	— 14 ⁰¹	14 ⁰³
315	Apr. 22 ⁵⁸	20	61	10 ⁹⁰	45	10 ³²	+ 1 ⁸⁶	10 ⁶⁵
316	May 19 ⁸¹	18	14	8 ⁹⁵	77	10 ⁰⁷	— 7 ²²	9 ⁹⁰
317	June 16 ⁰²	20	4	10 ³¹	10	12 ⁸⁰	— 5 ⁷²	12 ⁰³
318	July 13 ²²	17	4	12 ³¹	2	12 ⁰⁴	+ 2 ⁹³	12 ²¹
319	Aug. 9 ⁴³	17	54	8 ⁹⁰	0	...	+ 8 ⁹⁰	8 ⁹⁰
320	Sept. 5 ⁶⁸	16	45	8 ⁹⁵	27	7 ⁹³	+ 2 ⁶⁴	8 ⁵⁷
321	Oct. 2 ⁹⁵	15	0	...	40	8 ¹⁰	— 8 ¹⁰	8 ¹⁰
322	Oct. 30 ²⁴	20	0	...	403	8 ²⁷	— 8 ²⁷	8 ²⁷
323	Nov. 26 ⁵⁵	18	0	...	99	10 ²⁴	— 10 ²⁴	10 ²⁴
324	Dec. 23 ⁸⁷	19	2	7 ⁵⁰	0	...	+ 7 ⁵⁰	7 ⁵⁰
325	1878 Jan. 20 ²¹	22	16	7 ⁶⁵	12	8 ³⁷	+ 0 ⁵⁶	7 ⁹⁶
326	Feb. 16 ⁵⁵	27	38	6 ⁴¹	1	7 ⁹⁵	+ 6 ²⁴	6 ⁴³
327	Mar. 15 ⁸⁸	25	13	7 ⁶⁶	0	...	+ 7 ⁶⁶	7 ⁶⁶
328	Apr. 12 ¹⁷	25	0	...	0	...	...	...
329	May 9 ⁴²	27	81	8 ²⁶	0	...	+ 8 ²⁶	8 ²⁶
330	June 5 ⁶³	27	23	13 ⁶²	1	6 ⁷⁰	+ 13 ¹⁷	13 ⁴⁷
331	July 2 ⁸²	25	1	15 ³⁰	0	...	+ 15 ³⁰	15 ³⁰
332	July 30 ⁰³	25	0	...	0	...	...	...
333	Aug. 26 ²⁷	28	61	3 ⁸⁷	0	...	+ 3 ⁸⁷	3 ⁸⁷
334	Sept. 22 ⁵³	27	0	...	0	...	...	...
335	Oct. 19 ⁸¹	27	34	10 ⁵⁰	0	...	+ 10 ⁵⁰	10 ⁵⁰
336	Nov. 16 ¹²	27	3	4 ¹⁴	0	...	+ 4 ¹⁴	4 ¹⁴
337	Dec. 13 ⁴³	28	0	...	2	1 ⁵⁷	— 1 ⁵⁷	1 ⁵⁷
338	1879 Jan. 9 ⁷⁷	26	0	...	1	23 ⁷⁵	— 23 ⁷⁵	23 ⁷⁵
339	Feb. 6 ¹¹	25	0	...	0	...	...	...
340	Mar. 5 ⁴⁴	28	0	...	0	...	...	...
341	Apr. 1 ⁷⁵	23	0	...	66	20 ⁸¹	— 20 ⁸¹	20 ⁸¹
342	Apr. 29 ⁰¹	24	6	14 ²⁵	0	...	+ 14 ²⁵	14 ²⁵
343	May 26 ²³	23	0	...	0	...	...	...
344	June 22 ⁴⁴	22	32	8 ³⁴	53	26 ⁶⁵	— 13 ⁴⁷	19 ⁷⁵
345	July 19 ⁶⁴	23	14	9 ⁹⁷	4	17 ⁴⁰	+ 3 ⁴⁶	11 ⁷⁴
346	Aug. 15 ⁸⁶	20	73	27 ⁸⁶	0	...	+ 27 ⁸⁶	27 ⁸⁶
347	Sept. 12 ¹¹	23	15	24 ⁶⁴	6	23 ¹¹	+ 11 ⁰⁰	24 ²⁰
348	Oct. 9 ³⁹	22	16	20 ⁴⁸	77	22 ⁹³	— 15 ⁴⁰	22 ⁵⁰
349	Nov. 5 ⁶⁸	24	13	30 ⁴⁶	127	21 ⁹⁴	— 17 ¹⁶	22 ⁷¹
350	Dec. 2 ⁹⁹	24	0	...	37	19 ⁷⁷	— 19 ⁷⁷	19 ⁷⁷
351	Dec. 30 ³²	26	143	21 ³⁸	127	15 ⁶⁸	+ 3 ⁹¹	18 ⁶⁹
352	1880 Jan. 26 ⁶⁶	25	298	22 ⁰³	75	17 ⁴⁹	+ 14 ¹⁰	21 ¹²
353	Feb. 23 ⁰⁰	27	87	19 ⁹²	93	26 ⁰³	— 3 ⁸⁷	23 ⁰⁸
354	Mar. 21 ³²	26	60	17 ⁹⁰	47	21 ⁸³	+ 0 ⁴⁶	19 ⁶³
355	Apr. 17 ⁶⁰	27	404	23 ⁴⁶	1	28 ¹⁰	+ 23 ³⁷	23 ⁴⁷
356	May 14 ⁸⁴	27	281	14 ⁶⁸	4	21 ¹⁹	+ 14 ¹⁴	14 ⁷⁸
357	June 11 ⁰⁴	23	87	23 ³⁹	470	22 ¹⁶	+ 15 ⁰⁸	22 ³⁵
358	July 8 ²⁴	24	224	17 ⁷³	41	33 ⁰²	+ 9 ⁸⁸	20 ¹⁰
359	Aug. 4 ⁴⁵	25	627	18 ⁹⁸	103	18 ⁰⁶	+ 13 ⁷⁵	18 ⁸⁵
360	Aug. 31 ⁶⁹	26	318	20 ⁴⁷	578	17 ⁴⁴	— 3 ⁹⁹	18 ⁵²
361	Sept. 27 ⁹⁶	26	354	19 ⁰¹	379	19 ⁶⁷	— 0 ⁹⁹	19 ³⁵
362	Oct. 25 ²⁵	27	125	20 ⁵⁴	106	15 ⁸²	+ 3 ⁸⁷	18 ³⁸
363	Nov. 21 ⁵⁶	22	486	20 ⁸⁸	273	13 ⁷⁸	+ 8 ⁴³	18 ³³
364	Dec. 18 ⁸⁸	24	317	22 ⁷⁰	120	24 ⁴⁵	— 9 ⁷⁰	23 ¹⁸

Mean Heliographic Latitude of Sun Spots—*continued*.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots North of the Equator.		Spots South of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
			Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
365	1881 Jan. 15 ²¹	27	471	17 ⁹³	301	16 ⁸⁸	+ 4 ³⁸	17 ⁵²
366	Feb. 11 ⁵⁶	26	195	18 ⁶⁵	225	19 ³²	- 1 ⁷²	19 ⁰¹
367	Mar. 10 ⁸⁸	27	378	15 ⁸⁹	382	20 ¹⁴	- 2 ²²	18 ⁰³
368	Apr. 7 ¹⁸	27	210	12 ⁴⁸	265	18 ⁰²	- 4 ⁵³	15 ⁵⁷
369	May 4 ⁴⁴	27	149	16 ⁹¹	275	18 ⁷²	- 6 ¹⁶	18 ⁰⁸
370	May 31 ⁶⁵	23	292	19 ⁰¹	295	14 ⁸⁸	+ 2 ⁰⁴	16 ⁸⁶
371	June 27 ⁸⁵	24	523	18 ⁷³	281	17 ¹⁰	+ 6 ²¹	18 ¹⁶
372	July 25 ⁰⁶	25	631	20 ⁸⁹	145	17 ²⁶	+ 13 ⁷⁷	20 ²¹
373	Aug. 21 ²⁸	25	847	18 ⁴⁷	241	20 ⁷⁷	+ 9 ⁷⁶	18 ⁹⁸
374	Sept. 17 ⁵⁴	27	507	17 ⁸⁰	105	17 ⁸⁹	+ 11 ⁶⁵	17 ⁸¹
375	Oct. 14 ⁸²	27	444	16 ⁶¹	141	18 ¹³	+ 8 ²¹	16 ⁹⁸
376	Nov. 11 ¹²	28	886	16 ¹⁴	256	19 ⁶¹	+ 8 ¹³	16 ⁹¹
377	Dec. 8 ⁴⁴	27	381	23 ⁰⁰	52	24 ⁷⁰	+ 17 ²⁴	23 ²⁶
378	1882 Jan. 4 ⁷⁷	22	289	16 ⁰³	107	19 ⁵⁹	+ 6 ⁴⁰	17 ⁰⁰
379	Feb. 1 ¹¹	26	340	10 ⁹⁴	337	16 ²²	- 2 ⁵⁷	13 ⁵⁷
380	Feb. 28 ⁴⁵	27	116	13 ⁶⁴	836	12 ⁹⁸	- 9 ⁷²	13 ⁰⁶
381	Mar. 27 ⁷⁶	27	339	14 ⁰¹	1597	22 ⁰⁶	- 15 ⁷⁶	20 ⁶⁶
382	Apr. 24 ⁰³	26	652	18 ³²	1037	23 ⁰⁴	- 7 ⁰⁷	21 ²²
383	May 21 ²⁶	27	203	18 ⁰⁹	379	15 ⁸⁸	- 4 ⁰³	16 ⁶⁵
384	June 17 ⁴⁶	24	247	15 ⁶⁶	246	15 ³⁷	+ 0 ¹⁷	15 ⁵²
385	July 14 ⁶⁶	23	328	14 ⁸²	166	14 ⁰⁴	+ 5 ¹¹	14 ⁵⁶
386	Aug. 10 ⁸⁸	24	651	15 ⁸¹	208	16 ⁶⁴	+ 7 ⁹⁵	16 ⁰¹
387	Sept. 7 ¹²	25	566	12 ⁶⁸	636	22 ¹⁴	- 5 ⁷⁵	17 ⁶⁸
388	Oct. 4 ⁴⁰	27	776	16 ⁶⁰	520	22 ⁰⁷	+ 1 ¹⁰	18 ⁷⁹
389	Oct. 31 ⁶⁹	27	1142	18 ²⁷	873	18 ⁹⁴	+ 2 ¹⁵	18 ⁵⁶
390	Nov. 28 ⁰⁰	28	213	14 ⁷⁷	208	14 ¹⁹	+ 0 ⁴⁷	14 ⁴⁸
391	Dec. 25 ³²	26	263	8 ⁰⁷	703	13 ⁸²	- 7 ⁸⁶	12 ²⁵
392	1883 Jan. 21 ⁶⁶	25	469	8 ³³	324	16 ⁴¹	- 1 ⁷⁶	11 ⁶³
393	Feb. 18 ⁰⁰	26	143	9 ⁴²	165	13 ⁴²	- 2 ⁸⁵	11 ⁵⁷
394	Mar. 17 ³³	28	363	12 ¹⁶	710	14 ⁴⁰	- 5 ⁴¹	13 ⁶⁴
395	Apr. 13 ⁶²	26	233	10 ³²	522	18 ⁰⁰	- 9 ²⁶	15 ⁶³
396	May 10 ⁸⁶	26	172	12 ⁶⁶	424	13 ⁶²	- 6 ⁰⁴	13 ³⁵
397	June 7 ⁰⁷	27	545	10 ⁴⁶	1017	15 ³⁷	- 6 ³⁵	13 ⁶⁶
398	July 4 ²⁷	20	360	10 ⁶⁹	1677	15 ¹¹	- 10 ⁵⁵	14 ³³
399	July 31 ⁴⁷	25	78	13 ⁴⁸	473	13 ⁶⁷	- 9 ⁸¹	13 ⁶⁴
400	Aug. 27 ⁷¹	23	410	11 ⁷⁵	1179	17 ¹⁴	- 9 ⁶⁹	15 ⁷⁵
401	Sept. 23 ⁹⁷	27	403	11 ⁴⁶	1075	12 ⁷⁷	- 6 ¹⁶	12 ⁴²
402	Oct. 21 ²⁶	27	416	10 ⁹⁹	1190	11 ⁶⁷	- 5 ⁸⁰	11 ⁴⁹
403	Nov. 17 ⁵⁶	25	440	14 ⁸⁷	862	11 ⁴³	- 2 ⁵⁵	12 ⁶⁰
404	Dec. 14 ⁸⁸	24	753	12 ¹²	1156	10 ⁸⁰	- 1 ⁷⁶	11 ³²
405	1884 Jan. 11 ²²	25	932	10 ⁶⁷	784	16 ²⁴	- 1 ⁶²	13 ²²
406	Feb. 7 ⁵⁶	23	859	10 ⁰¹	575	13 ²⁸	+ 0 ⁶⁷	11 ³²
407	Mar. 5 ⁸⁹	25	381	10 ⁵⁹	800	11 ⁰⁴	- 4 ⁰⁶	10 ⁹⁰
408	Apr. 2 ¹⁹	25	115	9 ³¹	1536	11 ⁶⁷	- 10 ²¹	11 ⁵⁰
409	Apr. 29 ⁴⁵	26	219	10 ³⁷	965	10 ⁸⁸	- 6 ⁹⁶	10 ⁷⁹
410	May 26 ⁶⁸	19	297	11 ⁷¹	498	10 ⁸⁸	- 2 ⁴⁴	11 ¹⁹
411	June 22 ⁸⁸	17	316	11 ¹³	345	10 ⁸³	- 0 ³⁴	10 ⁹⁷
412	July 20 ⁰⁸	21	318	6 ⁷⁵	439	7 ⁵²	- 1 ⁵³	7 ²⁰
413	Aug. 16 ³⁰	24	416	9 ⁵⁷	231	13 ⁰¹	+ 1 ⁵¹	10 ⁸⁰
414	Sept. 12 ⁵⁵	22	1074	12 ⁹¹	404	11 ⁷¹	+ 6 ¹⁹	12 ⁵⁸
415	Oct. 9 ⁸³	26	219	12 ⁹⁴	541	12 ⁰⁶	- 4 ⁸⁶	12 ³¹
416	Nov. 6 ¹³	26	188	8 ⁰³	283	8 ³⁶	- 1 ⁸¹	8 ²³
417	Dec. 3 ⁴⁴	26	577	8 ¹¹	275	10 ⁷³	+ 2 ⁰²	8 ⁹⁶
418	Dec. 30 ⁷⁷	25	100	7 ⁷²	373	11 ¹⁶	- 7 ¹⁶	10 ⁴³
419	1885 Jan. 27 ¹¹	27	298	4 ⁷²	880	12 ²¹	- 7 ⁹²	10 ³¹
420	Feb. 23 ⁴⁵	28	169	7 ³⁷	631	13 ²⁵	- 8 ⁸⁹	12 ⁰¹
421	Mar. 22 ⁷⁶	27	493	10 ⁵¹	298	15 ⁷³	+ 0 ⁶¹	12 ⁵⁸

Mean Heliographic Latitude of Sun Spots—*continued*.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots North of the Equator.		Spots South of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
			Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
422	1885 Apr. 19 ⁰⁴	26	363	11 ⁰⁹	480	10 ⁸⁶	— 1 ⁰¹	11 ³⁵
423	May 16 ²⁷	27	419	12 ⁷⁶	851	12 ²³	— 3 ⁹⁸	12 ⁴⁰
424	June 12 ⁴⁷	26	686	10 ⁵⁸	1026	13 ⁴²	— 3 ⁸⁰	12 ²⁸
425	July 9 ⁶⁷	27	217	9 ³⁴	697	13 ¹³	— 7 ⁷⁹	12 ²³
426	Aug. 5 ⁸⁹	26	175	9 ⁸³	496	11 ⁴⁴	— 5 ⁹¹	11 ⁰²
427	Sept. 2 ¹³	28	178	10 ²³	455	10 ⁸⁰	— 4 ⁸⁹	10 ⁶⁴
428	Sept. 29 ⁴⁰	27	188	7 ⁸⁶	478	12 ⁶⁴	— 6 ⁸⁷	11 ³⁰
429	Oct. 26 ⁷⁰	27	287	14 ³⁸	333	11 ⁴⁷	+ 0 ⁴⁹	12 ⁸¹
430	Nov. 23 ⁰¹	28	106	15 ¹¹	14	11 ⁴⁵	+ 11 ⁹⁸	14 ⁶⁸
431	Dec. 20 ³³	26	159	12 ⁵⁸	496	10 ²⁷	— 4 ⁷³	10 ⁸³

The above Table supersedes the corresponding Tables given in the volumes of Greenwich Observations for 1884 and 1885.

MEAN HELIOGRAPHIC LATITUDE OF SUN SPOTS for each YEAR from 1874 to 1885.

Year.	No. of Days on which Photographs were taken.	Spots North of the Equator.		Spots South of the Equator.		Mean Heliographic Latitude of entire Spotted Area.	Mean Distance from Equator of all Spots.
		Mean of Daily Areas.	Mean Heliographic Latitude.	Mean of Daily Areas.	Mean Heliographic Latitude.		
1874	141	263	9 ⁰³	340	12 ¹⁹	— 2 ⁹³	10 ⁸¹
1875	263	145	12 ⁰⁰	103	10 ¹¹	+ 2 ⁸¹	11 ²²
1876	271	40	11 ⁸³	87	10 ⁸⁷	— 3 ⁷⁷	11 ¹⁷
1877	235	38	9 ⁶⁹	70	9 ⁵¹	— 2 ⁷⁴	9 ⁵⁷
1878	347	21	7 ⁶⁰	1	7 ¹²	+ 6 ⁹⁰	7 ⁵⁸
1879	318	11	21 ¹⁴	27	22 ³²	— 9 ³⁴	21 ⁹⁶
1880	341	269	19 ⁹⁹	171	19 ¹⁰	+ 4 ⁷⁹	19 ⁶⁴
1881	348	454	18 ²⁰	226	18 ⁵⁰	+ 6 ⁰⁰	18 ³⁰
1882	343	442	15 ⁹⁶	557	19 ²⁸	— 3 ⁶⁹	17 ⁸¹
1883	340	339	10 ⁹⁹	815	13 ⁹²	— 6 ⁶⁰	13 ⁰⁶
1884	315	478	10 ⁶⁵	601	11 ⁷⁴	— 1 ⁸²	11 ²⁶
1885	359	280	10 ⁵⁴	526	12 ⁴³	— 4 ⁴⁴	11 ⁷⁷

The Means of Daily Areas, etc., for the Year 1874, refer to a period of eight months, from 1874 April 27 to 1874 December 18.

The above Table supersedes the corresponding Tables given in the volumes of Greenwich Observations for 1884 and 1885.

**UNIVERSITY OF CALIFORNIA LIBRARY
BERKELEY**

Return to desk from which borrowed.
This book is DUE on the last date stamped below.

ASTRONOMY LIBRARY

LD 21-100m-11,'49 (B7146s16)476

YH 02497

701270

QB525

G+6

Astron

sept

UNIVERSITY OF CALIFORNIA LIBRARY

4/27/30

ROYAL OBSERVATORY, GREENWICH.

PHOTO-HELIOGRAPHIC
RESULTS.

1874-1885.